QK
.072
V.10
pt.5
c.2

VOLUME 10 PART 5

NORTH AMERICAN FLORA

(AGARICALES)

AGARICACEAE (pars)

AGARICEAE (pars)

HYPODENDRUM

LEE ORAS OVERHOLTS

CORTINARIUS

CALVIN HENRY KAUFFMAN

PUBLISHED BY

THE NEW YORK BOTANICAL GARDEN

NOVEMBER 21, 1932

ANNOUNCEMENT

NORTH AMERICAN FLORA is designed to present in one work descriptions of all plants growing, independent of cultivation, in North America, here taken to include Greenland, Central America, the Republic of Panama, and the West Indies, except Trinidad, Tobago, and Curaçao and other islands off the north coast of Venezuela, whose flora is essentially South American.

The work will be published in parts at irregular intervals, by the New York Botanical Garden, through the aid of the income of the David Lydig Fund bequeathed by Charles P. Daly.

It is planned to issue parts as rapidly as they can be prepared, the extent of the work making it possible to commence publication at any number of points. The completed work will form a series of volumes with the following sequence:

Volume 1. Myxomycetes, Schizophyta.

Volumes 2 to 10. Fungi.

Volumes 11 to 13. Algae.

Volumes 14 and 15. Bryophyta.

Volume 16. Pteridophyta and Gymnospermae.

Volumes 17 to 19. Monocotyledones.

Volumes 20 to 34. Dicotyledones.

The preparation of the work has been referred by the Scientific Directors of the Garden to a committee consisting of Dr. N. L. Britton, Dr. M. A. Howe, and Dr. J. H. Barnhart.

Dr. Frederick V. Coville, of the United States Department of Agriculture; and Professor William Trelease, of the University of Illinois, have consented to act as an advisory committee.

Each author will be wholly responsible for his own contributions, being restricted only by the general style adopted for the work, which must vary somewhat in the treatment of diverse groups.

The subscription price is fixed at $1.50 for each part; it is expected that four or more parts will be required for each volume. A limited number of separate parts will be sold at $2.00 each. Address:

THE NEW YORK BOTANICAL GARDEN
BRONX PARK
NEW YORK CITY

LIBRARY
NEW YORK
BOTANICAL
GARDEN

Pholiota hormophora (Mont.) Sacc. Syll. Fung. **5**: 754. 1887. (*Agaricus hormophorus* Mont. Syll. Crypt. 116. 1856.) Collected by Sullivant in Ohio and described by Montagne. Said to resemble *P. tuberculosa* Fries and is described as having a bulbous enlargement at the base of the stipe.

Pholiota Lucifer (Lasch) Quél. Champ. Jura Vosg. 230. 1872. (*Agaricus Lucifer* Lasch, Linnaea **3**: 408. 1828.) Reported by Kauffman from Michigan and may have to be recognized, but is surely close to *P. limonella* Peck, though described and figured as with a peronate-scaly stipe.

Pholiota luxurians (Fries) Gill. Champ. Fr. 439. 1876. Reported by Harper from the Great Lakes region. The specimen seems to be related to *P. aeruginosa* Peck.

Pholiota mollicula Banning; Peck, Ann. Rep. N. Y. State Mus. **44**: 182 (70). 1891. Originally described from Maryland, growing on the roots of trees.

Pholiota ornella Peck, Bull. N. Y. State Mus. 122: 151. 1908. (*Agaricus ornellus* Peck, Ann. Rep. N. Y. State Mus. **34**: 42. 1883.) Not distinct from *Flammula polychroa* Berk.

Pholiota radicosa (Bull.) Quél. Champ. Jura Vosg. 92. 1872. (*Agaricus radicosus* Bull. Herb. Fr. *pl. 160.* 1783.) Reported from the Pacific coast by Harkness and Moore but I have seen no specimens of this highly characteristic species.

Pholiota rubecula Banning; Peck, Ann. Rep. N. Y. State Mus. **44**: 182 (70). 1891. Has rough spores and otherwise seems to belong close to *P. spectabilis* Fries.

Pholiota sabulosa Peck, Bull. Torrey Club **23**: 414. 1896. Described as growing in sandy soil in Alabama. The spores are rough-walled, 8.5–9.5 × 5–6 μ. Flask-shaped cystidia project from between the basidia. Both of these characters ally the plant to the *P. marginata* complex in which there is already an over-abundance of described species. Specimens in the Underwood Herbarium at New York show the plant to have been growing from humus-charged earth, and it is probably to be regarded as a form of *P. marginata* or *P. discolor*.

Pholiota speciosa Clements, Bot. Surv. Neb. **2**: 41. 1893. The description is inadequate for the recognition of the species. If the spore-measurements (5 × 3.5 μ) are correctly recorded it would fall in the neighborhood of *P. duroides*, with which it seems to have other characters in common.

Pholiota sphaleromorpha (Bull.) Quél. Champ. Jura Vosg. 91. 1872. (*Agaricus sphaleromorphus* Bull. Herb. Fr. *pl. 540.* 1791.) Harper is of the opinion that *P. Howeana* Peck is referable to this species. At all events it is very similar and there are now too many species described with the peculiar truncate spores, the prominent cystidia, and other characters common to this group.

Pholiota subsquarrosa (Fries) Sacc. Syll. Fung. **5**: 750. 1887. Reported by McIlvaine. I have seen no specimens so referable, and McIlvaine records that the plants seem different from the European species.

Pholiota terrigena (Fries) Sacc. Syll. Fung. **5**: 737. 1887. The species has been reported from the United States but I have seen no material that corresponds to specimens from Bresadola. The plants so recorded should be compared with *P. terrestris* Overholts, which has smaller spores and prominent cystidia.

Pholiota villosa (Fries) Sacc. Syll. Fung. **5**: 752. 1887. Specimens so determined by Peck and similar collections from the Pacific coast seem referable to *P. spectabilis*.

75. HYPODENDRUM* Paulet, Traité Champ. *pl. 137.* 1825.

Myxocybe Fayod, Ann. Sci. Nat. VII. **9**: 361. 1889.

Plants fleshy, putrescent, bright-colored, yellow to tawny, typically in dense cespitose clusters, xylophilous; pileus squamose or squarrose, usually densely so; lamellae adnexed to slightly decurrent; spores ferruginous or fuscous, smooth; stipe central, fleshy, squarrose or squamose, typically densely so below the annulus, not sheathed; veil present, forming a distinct though often evanescent annulus; typically with brown sterile organs in the hymenium.

Type species, *Hypodendrum squarrosum* Paulet.

* By LEE ORAS OVERHOLTS.

NOV 21 1932

Species of temperate North America.
- Spores 3–6 μ long.
  - Pileus pallid to cinnamon when fresh, viscid, densely scaly with erect or suberect pointed concolorous scales; stipe with pallid scales. — 1. *H. squarrosoides.*
  - Pileus lemon-yellow to tawny or fiery-yellow when fresh, dry, with fibrillose, superficial, sulphur-yellow scales; stipe with yellow floccose scales. — 2. *H. flammans.*
- Spores 6–9 μ long.
  - Pileus viscid.
    - Brown cystidia present in the hymenium; pileus reddish-yellow to tawny, 4–15 cm. broad; lamellae 4–10 mm. broad.
      - Stipe stout, increasingly scaly downward, viscid. — 3. *H. aurivellum.*
      - Stipe slender, uniformly scaly throughout, dry. — 4. *H. adiposum.*
    - Brown cystidia absent; pileus lemon-yellow, 2–5 cm. broad; lamellae 2–4 mm. broad. — 5. *H. limonellum.*
  - Pileus dry.
    - Pileus pallid to brown, with minute dot-like scales. — 6. *H. angustipes.*
    - Pileus yellow to ochraceous-orange with larger conspicuous scales.
      - Stipe 1–4 cm. long, 1–5 mm. thick, with a distinct bulb at the base. — 7. *H. tuberculosum.*
      - Stipe 5–12 cm. long, 5–12 mm. thick, not bulbous at the base.
        - Cystidia numerous, brown; pileus with recurved scales. — 8. *H. floccosum.*
        - Cystidia none; pileus with appressed-fibrillose scales. — 9. *H. fulvosquamosum.*
- Spores 9–14 μ long.
  - Spores elliptic-fusoid, the ends pointed; lamellae 3–6 mm. broad. — 10. *H. albocrenulatum.*
  - Spores oblong-ellipsoid, the ends rounded; lamellae 6–12 mm. broad. — 11. *H. aurivelloides.*

Species of tropical North America. — 12. *H. scobifer.*

1. **Hypodendrum squarrosoides** (Peck) Overholts.

Agaricus squarrosoides Peck, Ann. Rep. N. Y. State Mus. **31**: 33. 1879.
Pholiota squarrosoides Sacc. Syll. Fung. **5**: 750. 1887.

Pileus 2.5–10 cm. broad, subglobose to convex or nearly plane, light-colored, typically cinnamon-buff or cinnamon in dried plants, viscid, covered with erect, pointed, cinnamon or tawny scales that give color to the pileus, sometimes disappearing on the margin; context white or slightly yellowish; lamellae sinuate-adnate, medium-close, 4–7 mm. broad, whitish becoming brownish-ferruginous, cinnamon or ochraceous-tawny in dried plants; veil forming a floccose, persistent or evanescent annulus; stipe central, equal, brownish and with recurved light-cinnamon or tawny scales below the annulus, white and smooth above, solid or stuffed, 5–15 cm. long, 5–12 mm. thick; spores ellipsoid or oblong-ellipsoid, smooth, 4–6 × 3–4 μ; cystidia present, variable, either hyaline, pointed at the apex, projecting slightly, or brown, obtuse or pointed, sometimes projecting, both types measuring 25–35 × 12 μ.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On stumps and trunks of deciduous trees.
DISTRIBUTION: Maine to Connecticut, and westward to Michigan.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **54**: *pl. 73, f. 6–14;* Atk. Stud. Am. Fungi ed. 2. *pl. 48;* Bull. Conn. Geol. Nat. Hist. Surv. **3**: *pl. 21;* Trans. Wisc. Acad. **17**: *pl. 36, 37.*

2. **Hypodendrum flammans** (Batsch) Murrill, Mycologia 4: 261. 1912.

Agaricus flammans Batsch, Elench. Fung. 87. 1783.
Pholiota flammans Sacc. Syll. Fung. **5**: 753. 1887.

Pileus 2–5 (–8) cm. broad, convex to plane, sometimes umbonate, lemon-yellow or tawny-yellow, zinc-orange or tawny in dried plants, dry, adorned with yellow, superficial, floccose-fibrillose scales that may in large part disappear with age; context thin, yellow; lamellae adnate or very slightly uncinate, medium-close, 2–5 mm. broad, yellow or ferruginous, snuff-brown in dried plants, or young specimens retaining their yellow color; veil lemon-yellow, fugacious; stipe central, equal, with yellow, recurved, floccose scales or scarcely more than densely yellow-floccose up to the annulus, stuffed or hollow, yellow, 2–7 cm. long, 2–5 mm. thick; spores oblong, smooth, 3–5.5 × 2–3 μ; cystidia abundant, flask-shaped or clavate-fusoid, brown or hyaline, projecting slightly, 30–40 × 6–12 μ.

TYPE LOCALITY: Europe.
HABITAT: On dead wood of both deciduous and coniferous trees.
DISTRIBUTION: New York, Michigan, and Oregon; also in Europe.
ILLUSTRATIONS: Batsch, Elench. Fung. *pl. 7, f. 30;* Cooke, Brit. Fungi *pl. 368 (396);* Fries, Ic. Hymen. *pl. 104, f. 1;* Ricken, Blätterp. Deutschl. *pl. 55, f. 5;* Trans. Wisc. Acad. **17**: *pl. 41, f. C.*

3. **Hypodendrum aurivellum** (Batsch) Overholts.

Agaricus aurivellus Batsch, Elench. Fung. Contin. 1: 153. 1786.
Pholiota aurivella Gill. Champ. Fr. 441. 1876.

Pileus 4–13 cm. broad, campanulate to convex, often broadly umbonate, when young more or less uniformly ochraceous-orange to tawny, when mature becoming more uniformly tawny, at first covered with large appressed spot-like scales which may in large part disappear and when wet may become more or less gelatinous, viscid; context yellow; lamellae sinuate-adnate or adnate, close, dark-rusty-brown when mature; veil forming a superior, torn, spore-stained, partly evanescent annulus; stipe central or excentric, equal or tapering upward, dry, yellowish or yellowish-brown, floccose above the annulus, fibrillose below and increasingly scaly or shreddy downward with fibrillose scales that may become recurved, solid, 5–8 cm. long, 5–15 mm. thick; spores exactly and constantly oblong-ellipsoid, smooth, 7–9.5 × 4–5 μ; cystidia present, often rather rare, brown, sometimes projecting and rather conspicuously sharp-pointed, sometimes imbedded and blunt, 6–8 μ in diameter.

TYPE LOCALITY: Europe.
HABITAT: On trunks of living (rarely dead) deciduous or coniferous trees.
DISTRIBUTION: Illinois, Colorado, California, and Oregon; also in Europe.
ILLUSTRATIONS: Batsch, Elench. Fung. *pl. 22, f. 114, 115;* Cooke, Brit. Fungi *pl. 351 (390);* Trans. Wisc. Acad. 17: *pl. 38, 39.*

4. **Hypodendrum adiposum** (Batsch) Overholts.

Agaricus adiposus Batsch, Elench. Fung. Contin. 1: 147. 1786.
Pholiota adiposa Quél. Champ. Jura Vosg. 93. 1872.

Pileus 3–16 cm. broad, hemispheric to convex or plane, antimony-yellow to zinc-orange or finally the center somewhat tawny, decorated with rather medium-sized squamules of a darker color than the rest of the pileus, and drying down to small dark spots on a tawny base, large thick specimens sometimes areolate in dry weather, all colors well retained in dried plants, viscid or glutinous or dry in dry weather; context thin or rather thick, white or light-yellow, with no marked taste; lamellae adnate or sinuate-adnate, rather close, 4–8 mm. broad, grayish-brown then yellow or rusty-brown, honey-yellow to tawny in dried specimens; veil yellow, forming a slight, floccose, evanescent annulus; stipe central or excentric, terete, equal or nearly so, viscid, yellow or tawny, with few or many erect or somewhat recurved yellow or tawny scales, or sometimes only fibrillose, solid or stuffed, rarely with a small hollow, 4–12 cm. long, 5–20 mm. thick; spores ellipsoid or oblong-ellipsoid, smooth, 7–9 × 3–4.5 μ; cystidia present, not conspicuous, not projecting, dark-brown, clavate, 20–35 × 5–9 μ.

TYPE LOCALITY: Europe.
HABITAT: Stumps and trunks of deciduous and perhaps of coniferous trees.
DISTRIBUTION: Massachusetts to Ohio and westward; also in Europe.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 49: *pl. 46;* Atk. Stud. Am. Fungi *pl. 43;* ed. 2. *pl. 47;* Batsch, Elench. Fung. *pl. 22, f. 113;* Berk. Outl. Brit. Fungol. *pl. 8, f. 2;* Cooke, Brit. Fungi *pl. 353 (395);* Hard, Mushr. *f. 211;* Mycologia 1: *pl. 7, f. 1–2.*

5. **Hypodendrum limonellum** (Peck) Murrill, Mycologia 4: 261. 1912.

Agaricus limonellus Peck, Ann. Rep. N. Y. State Mus. 31: 33. 1879.
Pholiota limonella Sacc. Syll. Fung. 5: 753. 1887.

Pileus 2.5–5 cm. broad, convex or nearly plane, sometimes umbonate, lemon-yellow when fresh, retaining the color in the dried plants or becoming slightly tawny, with scattered, reflexed or suberect, fibrillose, reddish or tawny scales, viscid; context thin and yellow; lamellae sinuate-adnate or slightly adnexed, close, 2–4 mm. broad, whitish becoming ferruginous, honey-yellow or cinnamon-buff in dried plants; veil forming a floccose, evanescent, yellow annulus; stipe central, equal, yellowish, with scattered recurved yellow scales, smooth above the annulus, solid, 3–7 cm. long, 3–5 mm. thick; spores ellipsoid or ovoid, smooth, deep-brown, 6.5–7.5 × 4.5–5 μ; cystidia none; trama with a distinct central medulla.

TYPE LOCALITY: Griffins, New York.
HABITAT: Prostrate trunks of beech and birch.
DISTRIBUTION: Known only from the type locality.

6. **Hypodendrum angustipes** (Peck) Overholts.

Agaricus angustipes Peck, Ann. Rep. N. Y. State Mus. **30**: 40. 1878.
Pholiota angustipes Sacc. Syll. Fung. **5**: 740. 1887.

Plants cespitose, 2.5–7 cm. broad, hemispheric becoming convex or nearly plane, brown or grayish-brown, becoming ochraceous-brown or subalutaceous, drying between avellaneous and cinnamon-buff or somewhat ochraceous-tawny, slightly viscid when moist, squamulose with minute, dot-like, appressed scales; context fleshy, thin, yellowish or whitish, with unpleasant taste; lamellae sinuate-adnate to adnate or slightly decurrent, medium-close, 3–6 mm. broad, whitish or creamy-yellow, becoming tawny-brown, cinnamon-buff, or cinnamon in dried plants; veil forming a slight usually evanescent annulus; stipe central, equal or tapering downward, whitish to avellaneous, slightly squamose or fibrillose, stuffed or hollow, 3–7.5 cm. long, 4–12 mm. thick; spores ellipsoid, smooth, dilute-brown under the microscope, 6–8 × 3–5 μ; cystidia none or scarcely noteworthy as small collapsed basidium-like bodies, brown in color, and occurring with the basidia.

TYPE LOCALITY: Schenevus, New York.
HABITAT: In pastures or open woods, commonly near or around old stumps.
DISTRIBUTION: New York, Ohio, and Wisconsin.
ILLUSTRATION: Trans. Wisc. Acad. **17**: *pl. 34*.

7. **Hypodendrum tuberculosum** (Schaeff.) Overholts.

Agaricus tuberculosus Schaeff. Fung. Bavar. **4**: Ind. 34. 1774.
Pholiota tuberculosa Gill. Champ. Fr. 443. 1876.

Pileus 2–6 cm. broad, convex to plane, rarely depressed, obtuse, more or less ochraceous-orange, ochraceous-tawny in herbarium specimens, dry, glabrous when young, soon breaking up into appressed- or erect-innate squamules; context yellow, thin, with a mild taste and no odor; lamellae emarginate or becoming free, broad, yellow then tawny, the edges serrate; veil forming a superior, often evanescent annulus; stipe central, with a prominent bulb just at the base and rooting below, fibrillose or slightly scaly, incurved, hollow, yellowish, 1.5–3 cm. long, 1–5 mm. thick; spores ellipsoid or oblong-ellipsoid, smooth, 6–8.5 × 4–5 μ; cystidia none.

TYPE LOCALITY: Europe.
HABITAT: On dead wood of deciduous trees.
DISTRIBUTION: Reported by Harper from Michigan; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 370* (*398*) *A*; Fries, Ic. Hymen. *pl. 104, f. 2*; Schaeff. Fung. Bavar. *pl. 79*; Trans. Wisc. Acad. **17**: *pl. 41, f. A, B*.

8. **Hypodendrum floccosum** (Schaeff.) Overholts.

Agaricus floccosus Schaeff. Fung. Bavar. **4**: Ind. 27. 1774.
Agaricus squarrosus Pers. Syn. Fung. 268. 1801.
Pholiota squarrosa Quél. Champ. Jura Vosg. 93. 1872.

Pileus 3–10 cm. broad, campanulate to convex or plane, yellowish or yellowish-brown, antimony-yellow to tawny in dried specimens, covered with recurved, tawny or yellowish scales, dry; context yellowish, with a mild taste; lamellae sinuate-adnate and often somewhat decurrent, medium-close, 3–6 mm. broad, pallid then ferruginous, in dried plants varying from honey-yellow to tawny-olive or tawny; veil forming a thick, persistent, floccose annulus often striate on the upper surface; stipe central, equal, pallid, yellow or brown, with recurved scales up to the annulus, solid, 5–12 cm. long, 5–12 mm. thick; spores oblong or ellipsoid, smooth, 6–8 × 3.5–4.5 μ; cystidia present, variable, of two general types: (a) hyaline, abundant, pointed at the apex, projecting, and (b) brown, blunt or truncate at the apex, mostly projecting, both types 25–35 × 7–14 μ.

TYPE LOCALITY: Europe.
HABITAT: On dead trunks or stumps of various trees, both deciduous and evergreen.
DISTRIBUTION: Maine to District of Columbia, and westward to Michigan and Colorado; also in Europe.
ILLUSTRATIONS: G. Bernard, Champ. Rochelle *pl. 19, f. 1*; Bull. N. Y. State Mus. **10**: *pl. 79, f. 1–7*; Cooke, Brit. Fungi *pl. 367* (*391*); Curt. Fl. Lond. **4**: *pl. 71*; Hard, Mushr. *f. 217*; Hussey, Ill. Brit. Myc. *pl. 8*; Pat. Tab. Fung. *f. 340*; Paulet & Lév. Ic. Champ. *pl. 137. f. 1, 2*; Schaeff. Fung. Bavar. *pl. 61*; Trans. Wisc. Acad. **17**: *pl. 35*.

9. **Hypodendrum fulvosquamosum** (Peck) Overholts.

Pholiota fulvosquamosa Peck, Bull. Torrey Club 30: 95. 1903.

Pileus fleshy, 6–12 cm. broad, rather thin, convex becoming nearly plane, dry, covered with a tawny fibrous cuticle of brownish fibrillose scales, the lighter-colored flesh showing up when the fibers separate into scales, sometimes concentrically cracked about the disk; context white, becoming brownish where cut, with taste and odor of radishes; lamellae rather narrow, close, adnate or joined to a slight collar around the stipe, whitish becoming pinkish-cinnamon then dark-cinnamon, with white crenulate edges; veil forming an ample, membranous, persistent annulus, scaly below and striate on the upper surface; stipe central, equal, stuffed or hollow, covered below the ring with numerous erect, subfloccose, tawny scales, slightly floccose above the annulus, 5–8 cm. long, 8–10 mm. thick; spores elliptic or ellipsoid, rather strongly apiculate at the base, dark-ferruginous-brown, smooth, 6–8 × 3.5–4.5 μ; cystidia none or not noteworthy.

TYPE LOCALITY: Lansing, Michigan.
HABITAT: About the base of trees or attached to buried wood.
DISTRIBUTION: Michigan.
ILLUSTRATION: Trans. Wisc. Acad. 17: *pl. 60*.

10. **Hypodendrum albocrenulatum** (Peck) Overholts.

Agaricus albocrenulatus Peck, Bull. Buffalo Soc. Nat. Sci. 1: 49. 1873.
Pholiota albocrenulata Sacc. Syll. Fung. 5: 760. 1887.

Pileus 2.5–7 cm. broad, conic-campanulate to convex or nearly plane, yellowish-brown to testaceous or Sanford's-brown, the darker of these colors in dried plants, viscid, with erect or suberect, brown or blackish, floccose scales that are easily separable and sometimes disappear in old plants; lamellae sinuate-adnate or slightly decurrent, medium-close or slightly distant, 3–6 mm. broad, grayish becoming ferruginous, the edges distinctly white-crenulate and remaining so at least in part in the dried plants; veil forming a slight fugacious annulus or partly appendiculate to the margin of the pileus; stipe central, equal or slightly tapering upward, sparingly or abundantly squamose up to the annulus, pallid or brown below, white and furfuraceous at the apex, 5–10 cm. long, 5–15 mm. thick; spores broadly elliptic or fusoid-elliptic, smooth, brown, 11–14 × 5–7 μ; cystidia none.

TYPE LOCALITY: Adirondack Mountains, New York.
HABITAT: At base of trees or on prostrate trunks, especially of sugar-maple; one collection said to have been from a hemlock stump.
DISTRIBUTION: New Hampshire, New York, Michigan, and Tennessee.
ILLUSTRATION: Trans. Wisc. Acad. 17: *pl. 42, 43*.

11. **Hypodendrum aurivelloides** Overholts, sp. nov.

Pileus 5–8 cm. broad, hemispheric or broadly campanulate to convex, ferruginous to tawny, lighter-colored on the margin, sometimes carob-brown in dried plants, probably viscid, with a few scattered, spot-like or appressed scales; context yellow, rather thick; lamellae sinuate-adnate or with a decurrent tooth, medium-close or slightly distant, 7–12 mm. broad, whitish then ochraceous-tawny or russet; veil forming a thin, superior, persistent or somewhat evanescent, floccose or submembranous annulus; stipe central, equal, yellowish or brownish, more or less scaly, the scales sometimes somewhat gelatinous, solid, 4–8 cm. long, 5–10 mm. thick; spores oblong-ellipsoid, smooth, deep-brown, 9–11 × 6 μ; cystidia numerous or rare, brown, not projecting, 25–35 × 6–8 μ. (See page 348.)

Type collected at Ohio Creek, Colorado, at an elevation of 2400 meters, August 24, 1899, *Mullenex brothers* (herb. N. Y. State Mus.).
HABITAT: On dead trees or from wounds in living *Alnus*, *Salix*, or *Betula*.
DISTRIBUTION: Wyoming, Colorado, and New Mexico.

12. **Hypodendrum scobifer** (Berk. & Curt.) Murrill, Mycologia 5: 35. 1913.

Agaricus scobifer Berk. & Curt. Jour. Linn. Soc. 10: 289. 1868.
Pholiota scobifera Sacc. Syll. Fung. 5: 753. 1887.

Pileus 1–2 cm. broad, convex, fulvous, clothed with slender, conic, erect, darker scales, dry even on the margin; lamellae very narrow; stipe central, enlarged below, clothed as the pileus; spores muricate, 8–10 × 4–5 μ.

TYPE LOCALITY: Cuba.
HABITAT: About the roots of trees.
DISTRIBUTION: Known only from the type locality.

76. CORTINARIUS * Fries, Epicr. Myc. 255. 1838.

Agaricus § *Cortinaria* Pers. Syn. Fung. 276. 1801.
Cortinaria S. F. Gray, Nat. Arr. Brit. Pl. **1**: 627. 1821.
Agaricus § *Telamonia* Fries, Syst. Myc. **1**: 210. 1821.
Agaricus § *Inoloma* Fries, Syst. Myc. **1**: 216. 1821.
Agaricus § *Phlegmacium* Fries, Syst. Myc. **1**: 226. 1821.
Agaricus § *Dermocybe* Fries, Syst. Myc. **1**: 227. 1821.
Agaricus § *Myxacium* Fries, Syst. Myc. **1**: 247. 1821.
? *Telamonia* Peck, Bull. N. Y. State Mus. **1**²: 8. 1888.
? *Dermocybe* Peck, Bull. N. Y. State Mus. **1**²: 8. 1888.
? *Hydrocybe* Peck, Bull. N. Y. State Mus. **1**²: 9. 1888.
? *Myxacium* Peck, Bull. N. Y. State Mus. **1**²: 14. 1888.
Dermocybe Fayod, Ann. Sci. Nat. VII. **9**: 372. 1889.
Hydrocybe Fayod, Ann. Sci. Nat. VII. **9**: 372. 1889.
Telamonia Fayod, Ann. Sci. Nat. VII. **9**: 373. 1889.
Myxacium Fayod, Ann. Sci. Nat. VII. **9**: 374. 1889.
Phlegmacium Fayod, Ann. Sci. Nat. VII. **9**: 375. 1889.
Sphaerotrachys Fayod, Ann. Sci. Nat. VII. **9**: 374. 1889.
Inoloma P. Karst. Medd. Soc. Faun. Fl. Fenn. **18**: 70. 1891.
Hydrocybium Earle, Bull. N. Y. Bot. Gard. **5**: 440. 1909.
Bulbopodium Earle, Bull. N. Y. Bot. Gard. **5**: 441. 1909.

Pileus fleshy, putrescent, solitary, gregarious or cespitose; surface dry or viscid, glabrous, silky or scaly; context floccose-fibrillose; lamellae persistent, dry, changing color during process of maturing, at length powdery with the clinging spores, adnate to emarginate; stipe central, fleshy, at first connected with margin of pileus by a cobwebby cortina; universal veil present or lacking, usually evanescent, either gelatinous or fibrillose-interwoven in texture; spores cinnamon-brown to ferruginous in mass, mostly with roughened epispore.

Type species, *Agaricus violaceus* L.

Surface of pileus covered by a gelatinous veil or pellicle, always more or less viscid or glutinous when moist.
  Stipe at first viscid or glutinous from veil. I. MYXACIUM.
  Stipe not viscid.
    Stipe with a marginate-depressed bulb at base. II. BULBOPODIUM.
    Stipe equal, clavate, or bulbous; bulb not marginate. III. PHLEGMACIUM.
Surface of pileus without a gelatinous veil or pellicle, hence not viscid.
  Pileus dry, *i.e.*, not hygrophanous, innately scaly, fibrillose or silky.
    Stipe stout, usually clavate-bulbous. IV. INOLOMA.
    Stipe rather slender, equal or tapering upward; pileus silky. V. DERMOCYBE.
  Pileus hygrophanous.
    Universal veil present, so that the stipe is peronate or annulate at first, or leaving superficial fibrils on the margin of the pileus. VI. TELAMONIA.
    Universal veil lacking; cortina when copious sometimes leaving a slight annular zone on stipe. VII. HYDROCYBE.

I. MYXACIUM

Stipe cylindric or attenuate below or ventricose.
  Lamellae and stipe at first some shade of violet or blue.
    Spores large, more than 10 μ long.
      Spores 14–18 × 7–9 μ; pileus 3–5 cm. broad; stipe deep-violet-blue within, quickly fading. 1. *C. splendidus.*
      Spores 12–15 × 6.5–8 μ; pileus 5–7 cm. broad; stipe violaceous within. 2. *C. cylindripes.*
    Spores small, normally not more than 10 μ long. (See division with clavate stipes.)
  Lamellae never truly violaceous or blue, sometimes grayish or cesious at first.
    Stipe sheathed by a pale-blue universal veil, ventricose; pileus radiately-wrinkled; spores 12–15 × 8–9 μ. 3. *C. elatior.*
    Stipe or veil white or whitish.
      Stipe at first peronate by a thick veil, this at length broken into thick concentric ridges; pileus orange to tawny-fulvous; spores 10–14 × 6–7 μ. 4. *C. mucifluus.*
      Stipe with thin appressed remnants of the more or less evanescent veil.
        Spores 12–15 × 6–7 μ; pileus chestnut-brown, even; stipe becoming fibrillose. 5. *C. mucosus.*
        Spores 14–18 × 7–9 μ; pileus tawny-orange, striate on the margin. 6. *C. muscigenus.*

* By CALVIN HENRY KAUFFMAN. The manuscript was prepared several years ago, but the author felt, only a few months before his last illness, that it required no revision, and it is now published essentially as it was left at his death in June 1931.

Stipe clavate or bulbous or attenuate upward.
Taste not at all bitter.
Pileus some shades of yellow or brown.
Spores 10–12.5 × 5–6 μ; stipe 7–14 cm. long; pileus yellowish-brown. 8. *C. submarginalis.*
Spores smaller, subglobose; pileus yellow.
Stipe solid, floccose; spores 6–7.5 × 5.5–6.5 μ. 9. *C. sphaerosporus.*
Stipe stuffed, with hollow apex, not floccose; spores 7–9 × 6–7 μ. 10. *C. delibutus.*
Pileus violet, purplish, or drab.
Stipe stout, 10–20 mm. thick; pileus pale-drab to smoky-gray. 7. *C. griseoluridus.*
Stipe less than 10 mm. thick.
Spores subglobose; pileus drab to gray. 11. *C. sterilis.*
Spores elliptic; pileus violet to purplish.
Spores 8–10 μ long; odor not of radish. 13. *C. iodes.*
Spores 10–12.5 μ long; odor of radish. 15. *C. heliotropicus.*
Taste of surface of pileus bitter; pileus 2–5 cm. broad.
Pileus yellow; stipe white. 12. *C. vibratilis.*
Pileus lavender-violet; stipe whitish, tinged violet by the universal veil. 14. *C. iodeoides.*

II. BULBOPODIUM

Lamellae (and at least the apex of stipe) at first violet, purplish, blue, or shades of these colors.
Lamellae turning purplish when bruised.
Stipe stuffed to hollow; context not turning purplish; pileus yellow-ochre-tawny. 22. *C. subpurpurascens.*
Stipe solid; context turning purplish when bruised.
Spores ellipsoid, 8–10 × 5–5.5 μ; pileus umber-purplish, 2–8 cm. broad. 23. *C. purpurascens.*
Spores spheroid, 7–8 × 6–7.5 μ; pileus violet-purple, 8–16 cm. broad. 24. *C. sphaerosperma.*
Lamellae not turning purplish when bruised.
Spores averaging more than 10 μ long.
Surface of pileus chiefly violet or purplish.
Pileus and stipe at length lutescent; universal veil ochraceous; cortina copious. 20. *C. velicopia.*
Pileus and stipe pale-violaceous, fading, not becoming lutescent; universal veil white. 25. *C. caesiocyaneus.*
Surface of pileus not violet or purplish; context sometimes at first showing these colors.
Pileus normally 4–6 (7) cm. broad.
Lamellae broad, violet-amethyst; pileus yellow (rarely with violet); bulb white; spores 12–14 × 6–7 μ. 27. *C. caerulescens.*
Lamellae narrow and crowded; pileus yellow.
Spores 9–12 (13) × 5–6 μ; lamellae adnexed. 28. *C. metarius.*
Spores 11–14 (15) × 6–8 μ; lamellae adnate to subdecurrent. 17. *C. arquatus.*
Pileus normally 6–10 (12) cm. broad.
Spores averaging more than 12 μ long; surface of pileus yellow.
Context pale-incarnate; stipe white downwards, without evident universal veil. 19. *C. lilacinopes.*
Context deep-violet; pileus and universal veil bright olive-yellow. 16. *C. Atkinsonianus.*
Spores not more than 12 μ long; pileus tawny-reddish; stipe pallid or violet-tinged; bulb white. 18. *C. purpureophyllus.*
Spores not more than 10 μ long.
Pileus 3–5 cm. broad, yellow; bulb flat, saucer-shaped; spores 8–10 × 4–5 μ. 29. *C. callochrous.*
Pileus larger.
Bulb large and prominently depressed-marginate; plant pale-violaceous-lilac; lamellae narrow. 21. *C. michiganensis.*
Bulb relatively small; lamellae rather broad.
Context, pileus and stipe at first violet-purple; pileus at length smoky-olive-gray. 26. *C. aggregatus.*
Context white, at length lutescent.
Pileus pale-orange-yellow, not streaked. 30. *C. glaucopoides.*
Pileus slate-gray, fulvous-streaked. 31. *C. glaucopus.*
Lamellae at first green, olivaceous, smoky, or assuming shades of these.
Context and young lamellae at the very first tinged with violet, blue, or purplish, but lamellae soon olivaceous.
Spores 9–11 (12) × 5.5–6.5 (7) μ; pileus variegated with brown, tawny, and slight olivaceous hues. 32. *C. montanus.*
Spores 8–9.5 × 5–6 μ; pileus Dresden-brown to tawny.
Bulb yellow from universal veil; stipe 6–10 mm. thick; lamellae narrow-linear. 33. *C. scaurus.*
Bulb white or whitish; stipe 10–20 mm. thick; lamellae broader than preceding. 34. *C. herpeticus.*

Context and gills not at the very first violet or blue.
Pileus ecru-olive to Hays-russet; stipe solid, white within and without; in coniferous forests. 35. *C. orichalceus.*
Pileus green, then pale-yellow; stipe stuffed then hollow, blue within and without; in frondose woods. 36. *C. virentophyllus.*
Lamellae at first yellow, fulvous, cinnamon, reddish, or rusty-brown.
Growing in the woods.
Spores not more than 10 μ long.
Spores ellipsoid; pileus and stipe sulphur-yellow; arising from yellow mycelium. 38. *C. fulmineus.*
Spores subglobose, 8–9 × 6–8 μ; pileus at first buff-citrine then clay-colored. 41. *C. citrinellus.*
Spores averaging more than 10 μ long.
Taste of context decidedly bitter; pileus and universal veil yellow; spores 15–18 (20) × 7–9 μ. 40. *C. elegantioides.*
Taste not bitter.
Pileus not corrugate.
Spores 9–12 μ long; pileus bright-orange, darker on the disk, lamellae broad. 37. *C. fulgens.*
Spores more than 12 μ long.
Pileus yellow, with tawny spots; no manifest universal veil; spores 12–15 × 8–9 μ. 39. *C. elegantior.*
Pileus dull-red to orange-tawny; bulb concolorous from universal veil; spores 15–18 × 7–8.5 μ. 43. *C. rubens.*
Pileus coarsely corrugate, tawny-yellow; stipe elongate, often twisted; bulb small. 44. *C. corrugatus.*
Growing in greenhouses, mushroom beds, etc.; lamellae whitish to ochraceous at first. 46. *C. intrusus.*
Lamellae at first white or pallid.
Pileus pale-olivaceous-stramineous; stipe soft, becoming hollow. 45. *C. olivaceo-stramineus.*
Pileus without olive tints.
Spores not more than 9 μ long; pileus at first white-hoary, lutescent to rusty-orange. 42. *C. multiformis.*
Spores more than 9 μ long.
Taste of pellicle of pileus bitter; odor farinaceous; pileus pale-tan to darker. 48. *C. aleuriosmus.*
Taste not bitter.
Pileus light-red; stipe stuffed, 6–10 mm. thick. 47. *C. sublateritius.*
Pileus and stipe white; stipe solid, 8–16 mm. thick. 49. *C. albidus.*

III. PHLEGMACIUM

Stipe annulate or spotted with brown scales.
Pileus 5–10 cm. broad, yellow to orange-ochraceous; stipe stout, annulate. 50. *C. triumphans.*
Pileus 3–6 cm. broad, bay-red; stipe spotted with brown scales. 51. *C. maculipes.*
Stipe not spotted nor annulate.
Stipe very long, 10–15 cm., 8–10 mm. thick.
Stipe round-bulbous at base; on sphagnum; lamellae and stipe at first tinged with violet. 52. *C. sphagnophilus.*
Stipe not bulbous, subequal.
Spores subspheroid; pileus yellowish-ochraceous. 67. *C. longipes.*
Spores elliptic; pileus reddish-yellow. 68. *C. ophiopus.*
Stipe not remarkably elongate, 5–10 cm. long.
Pileus corrugated, pale-ochre; lamellae violaceous at first; stipe subequal. 53. *C. copakensis.*
Pileus not corrugated.
Pileus radiately reticulate, orange-cinnamon (R); lamellae narrow. 69. *C. corruscans.*
Pileus not markedly reticulate.
Lamellae at first violet, bluish, purplish or cesious.
Spores subglobose.
Pileus at first cinereous, virgate; lamellae at first dark-violet. 54. *C. lapidophilus.*
Pileus buff to clay-colored.
Stipe stout, clavate-bulbous; lamellae pale-violaceous. 55. *C. albidipes.*
Stipe equal, 3–7 mm. thick; lamellae cesious at first. 62. *C. decoloratus.*
Spores ellipsoid.
Pileus virgate, grayish, lutescent; spores 7–8.5 μ long. 56. *C. lanatipes.*
Pileus not virgate; spores larger.
Context changing to blackish-purple when bruised; pileus 3–6 cm. broad, buff-brown. 63. *C. porphyropus*
Context not changing to purple.
Pileus, lamellae, and context at first deep-lavender. 57. *C. largus.*

Pileus not lavender.
Pileus thin and striate on the margin, brownish; spores 5–6 μ broad. 61. *C. substriatus.*
Pileus not striate.
Stipe vinaceous; spores 8–9 μ broad; pileus clay-colored. 58. *C. cyanopus.*
Stipe white, rarely violet at very apex; pileus yellow to tawny.
Lamellae lilac at first; spores 10–12 μ long. 59. *C. varius.*
Lamellae cesious at first; spores 8–10 μ long. 60. *C. claricolor.*
Lamellae not at first with violet colors.
Lamellae at first olivaceous or sooty-olive.
Taste of surface of pileus bitter; spores subglobose; pileus sooty-olive. 64. *C. infractus.*
Taste not bitter.
Spores ellipsoid; stem violaceous-tinged. 65. *C. olivaceus.*
Spores subglobose; pileus brownish-ochraceous. 66. *C. glutinosus.*
Lamellae at first yellow or pale-clay-colored to pallid.
Pileus virgate, with red fibrils; spores subglobose, 6–8 × 5–6 μ. 70. *C. virgatus.*
Pileus not virgate.
Stipe stout, 8–15 (20) mm. thick.
Spores 8–10 × 4.5–5.5 μ; pileus citrine (R) with olive tinge. 71. *C. immixtus.*
Spores 10–12 × 6–7 μ; pileus yellow.
Lamellae narrow; odor aromatic, penetrating. 72. *C. percomis.*
Lamellae broad; odor none.
Stipe 6–12 cm. long.
Pileus bright-reddish-yellow to tawny-orange; context white, scarcely lutescent. 73. *C. coloratus.*
Pileus olive-ocher to yellow-ochre; context at maturity becoming markedly sordid-yellow. 74. *C. saginus.*
Stipe short, 3–6 cm., stout, bulbous.
Lamellae very broad, the edge entire; stipe whitish, not lutescent-stained. 75. *C. balteatus.*
Lamellae of medium width, the edge eroded; stipe becoming rusty-stained. 76. *C. phyllophilus.*
Stipe 4–8 mm. thick.
Lamellae yellow at first; stipe bulbous, solid. 77. *C. luteo-fuscus.*
Lamellae white at first; stipe equal, stuffed-hollow. 78. *C. communis.*

IV. INOLOMA

Lamellae at first violet, purplish, lilac, gray, or shades of these colors.
Pileus distinctly and innately scaly.
Stipe abruptly rooting; plant large, chocolate-brown at maturity. 80. *C. squamulosus.*
Stipe not rooting.
Spores ellipsoid, 12–16 (18) × 7–9 μ; whole plant indigo-violet. 79. *C. violaceus.*
Spores subglobose.
Pileus ochraceous, covered by minute, erect, brown scales. 81. *C. asper.*
Pileus fawn-colored, covered by black-pointed brown scales, about or on decayed wood. 82. *C. pholideus.*
Pileus innately fibrillose, silky or only slightly scaly with minute scales.
Odor strong or distinctly noticeable on bruising or in age; pileus lavender.
Odor fetid; spores 9–12 × 5–6 μ. 83. *C. camphoratus.*
Odor spicy or musty; spores 7–9 × 5–5.5 μ. 84. *C. pyriodorus.*
Odor none or negligible.
Pileus normally large, 5–10 cm. broad.
Lamellae narrow and close.
Pileus, lamellae, and stipe unicolorous, pale-silvery-violaceous. 85. *C. argentatus.*
Pileus brownish-lilac; stipe whitish. 89. *C. Braendlei.*
Lamellae broad, subdistant.
Pileus, lamellae, and stipe unicolorous, lilaceous. 88. *C. lilacinus.*

Pileus and lamellae not unicolorous.
Stipe somewhat peronate from the whitish universal veil.
Spores 9–10.5 × 5–6.5 μ; pileus grayish-buff, then lutescent. 90. *C. subpulchrifolius.*
Spores 10–12 × 5.5–6.5 μ; pileus grayish-violaceous to reddish-brown. 92. *C. rimosus.*
Stipe not peronate, bulbous; spores 10–12.5 × 6.5–7.5 μ; pileus whitish to reddish-gray. 91. *C. pulchrifolius.*
Pileus normally 3–7 cm. broad.
Pileus and stipe silvery-violaceous-white.
Stipe equal above the marginate oblique bulb. 87. *C. obliquus.*
Stipe clavate or clavate-bulbous.
Stipe clavate, attenuate upward to subequal, 4–8 cm. long, 5–9 mm. thick. 86. *C. alboviolaceus.*
Stipe bulbous, 2–3 cm. long, 8–12 mm. thick, the bulb thicker. 108. *C. brevipes.*
Pileus with darker colors; spores 9–12 × 6–7.5 μ; pileus reddish-cinereous; stipe with an oval bulb. 93. *C. rubrocinereus.*
Lamellae at first yellowish-ochraceous.
Pileus some shade of yellow to tawny.
Spores ellipsoid; pileus pale-ochraceous. 97. *C. ochraceus.*
Spores subglobose.
Pileus more or less scaly with erect pointed scales.
Stipe arising from a white mycelium; plant tawny-yellowish. 94. *C. annulatus.*
Stipe arising from a yellow mycelium; plant saffron to chrome. 95. *C. croceocolor.*
Pileus appressed-tomentose to fibrillose-silky.
Stipe hard, equal, tapering downward or subventricose; cuticle thick, coarse and becoming broken. 99. *C. Whitei.*
Stipe clavate.
Pileus yellow-ocher, becoming ochraceous-orange in age; in coniferous forests. 96. *C. callisteus.*
Pileus sordid-buff to pale-ochraceous; in frondose or mixed woods. 98. *C. flavifolius.*
Pileus grayish-drab; stipe whitish; spores 7–8 × 4–4.5 μ. 100. *C. catskillensis.*
Lamellae at first white, pallid or brownish.
Pileus scaly.
Pileus and stipe variegated with appressed, red, hairy scales; context soft. 104. *C. bolaris.*
Pileus and stipe squarrose-scaly; lamellae brownish to fulvous. 109. *C. squarrosus.*
Pileus not scaly.
Pileus ochraceous-salmon (R); lamellae cinnamon-rufous. 103. *C. suillus.*
Pileus whitish, alutaceous, buff or drab.
Spores 10–12 μ long.
Plants very brittle, distorted, cespitose; lamellae subdistant, thick. 105. *C. distortus.*
Plants rather firm; lamellae rather close, thin. 102. *C. canescens.*
Spores 7–9 μ long.
Pileus and stipe silvery-white, tinted with drab; solitary to subcespitose. 106. *C. pinetorum.*
Pileus and stipe not silvery-white.
Pileus alutaceous, 2–4 cm. broad; stipe subfibrillose. 107. *C. modestus.*
Pileus pale-yellowish-buff; stipe very cespitose, subannulate. 101. *C. caespitosus.*

V. DERMOCYBE

Lamellae some shade of red.
Stipe blood-red, at least downward; lamellae rather broad.
Pileus blood-red.
Pileus usually broader than length of stem; spores 8–9 × 5–5.5 μ; in oak woods. 111. *C. cinnabarinus.*
Pileus less wide than stem; spores 6–7 × 4 μ; in coniferous regions. 110. *C. sanguineus.*
Pileus brown; spores 6–7 × 4–5 μ; in coniferous regions. 112. *C. anthracinus.*
Stipe yellow; pileus tawny-yellow; lamellae narrow. 113. *C. semisanguineus.*
Lamellae at first some shade of yellow or olive.
Spores elliptic.
Context, cortina, and stipe not olivaceous; stipe yellow.
Spores 6–7 × 4–5 μ.
Lamellae saffron-yellow to orange. 116. *C. croceofolius.*
Lamellae citron-yellow to cadmium-yellow. 114. *C. cinnamomeus.*
Spores 10–12 × 5 μ; lamellae broad, yellow. 117. *C. aureifolius.*
Context, cortina, or stipe with some shade of olive.
Spores 6–7 × 4–4.5 μ; context distinctly olive-green; pileus and stipe fulvous-yellow. 115. *C. malicorius.*
Spores 7–9 × 5–6 μ.
Stipe 3–5 mm. thick, 7–10 cm. long; on sphagnum; odor slight, not of radish. 118. *C. chrysolitus.*

Stipe 6–12 mm. thick, 5–7 cm. long; odor penetrating, of radish; taste subacrid. 119. *C. raphanoides.*
Spores globose to subglobose, about 6–7.5 μ diameter.
Lamellae adnate, yellow tinged with olive.
Odor none; stipe 3–7 cm. long, stout, sulphine-yellow (R); pileus 4–8 (10) cm. broad. 120. *C. subnotatus.*
Odor of radish; stipe 6–10 cm. long, light-green-yellow (R); pileus 3–6 cm. broad. 121. *C. clandestinus.*
Lamellae adnexed, luteous, subdistant; pileus 2–5 cm. broad. 122. *C. luteus.*
Lamellae at first violaceous.
Stipe 4–9 cm. long; lamellae at first violet or grayish-purplish; spores 7–9 × 6–7 μ. 123. *C. anomalus.*
Stipe 1–2 cm. long; lamellae adnexed, evanescently pale-violaceous at first; spores 6–7 × 5–6 μ. 124. *C. brevissimus.*
Lamellae at first white, pallid, or brownish.
Pileus and stipe pale-violaceous-drab; spores 9–10 × 5 μ. 126. *C. subtabularis.*
Pileus or stipe some other color.
Pileus white or whitish; spores subglobose.
Stipe equal or nearly so; pileus whitish, yellowish-tinged or ochraceous. 129. *C. albidifolius.*
Stipe irregularly clavate-bulbous, often decumbent at the base; pileus uniformly white. 131. *C. decumbens.*
Pileus some shade of brown or tawny.
Spores 15–16 × 8–9 μ; stipe slender, white; pileus chestnut-color. 128. *C. sericipes.*
Spores not more than 9 μ long.
Stipe short, 2–2.5 cm.; lamellae pale-tawny at first. 125. *C. basalis.*
Stipe longer.
Stipe slender, 2–4 mm. thick; pileus chestnut-brown, the umbo blackish; in fields. 127. *C. castanellus.*
Stipe 8–15 mm. thick; pileus Dresden-brown to old-gold; in coniferous forests. 130. *C. colymbadinus.*

VI. TELAMONIA

Pileus 3–10 cm. broad.
Lamellae at first violet, lilac, purplish, or shades of these.
Universal veil and annulus membranous; lamellae broad, subdistant, at first purplish. 132. *C. torvus.*
Universal veil interwoven-silky.
Pileus clothed with dense plumose-floccose covering, sepia; lamellae at first violet. 135. *C. plumiger.*
Pileus not plumose.
Stipe vermilion-red toward base; spores 8–9 × 4–5 μ. 137. *C. rubripes.*
Stipe not red.
Lamellae close; plant at first lavender in all parts; spores subglobose. 136. *C. deceptivus.*
Lamellae subdistant to distant.
Pileus 4–7 cm. broad, fuscescent; lamellae very broad. 138. *C. injucundus.*
Pileus 6–12 cm. broad.
Stipe 10–20 cm. long, relatively slender, radicating, deep-violet at base. 133. *C. evernius.*
Stipe 6–10 (12) cm. long, subclavate, subperonate by white veil. 134. *C. lucorum.*
Lamellae not with violet, purple, or lilac shades.
Pileus 3–7 cm. broad; stem clavate-bulbous.
Stipe and pileus brown; veil and annular band whitish. 140. *C. brunneofulvus.*
Stipe and pileus pale-grayish or whitish; lamellae adnexed. 142. *C. griseus.*
Pileus 5–8 (10) cm. broad.
Stipe clavate or clavate-bulbous; lamellae subdistant.
Universal veil red, leaving red concentric zones on stem; pileus tawny-rufescent, 6–15 cm. broad. 141. *C. armillatus.*
Universal veil whitish.
Spores globose, 5–7 μ in diameter; pileus snuff-brown (moist), then argillaceous. 139. *C. alutaceofulvus.*
Spores elliptic; pileus scarcely hygrophanous.
Pileus glabrous, cinnamon-brown to ochraceous-tawny; spores 10–12 μ long. 143. *C. bivelus.*
Pileus white-canescent to appressed-silky.
Spores 8–11 × 5–6 μ. 144. *C. laniger.*
Spores 7–8 × 4.5–5.5 μ. 145. *C. bulbosus.*
Stipe equal, yellow, ferruginascent at base; lamellae yellow at first. 146. *C. Morrisii.*
Pileus 2–4 (5) cm. broad, or smaller; stipe usually equal.
Lamellae at first violet, lilac, purplish, or shades of these.
Stipe 5–10 mm. thick; lamellae at first purplish.
Pileus purplish-umber; spores 7–8 × 4–4.5 μ. 151. *C. scutulatus.*
Pileus bay-brown, fading; spores 8–10 × 5.5–6.5 μ. 152. *C. adustus.*

Stipe 2–5 mm. thick.
Pileus convex, obtusely umbonate, 2–5 cm. broad; lamellae at first vinaceous-tinged. 153. *C. periscelis.*
Pileus conic to conic-campanulate.
Pileus glabrous, blackish-brown, fading. 154. *C. subflexipes.*
Pileus densely fibrillose-scaly, cinnamon-brown, with grayish-white scales. 155. *C. flexipes.*
Lamellae not at first with violet or purplish tints.
Stipe about 4–8 (10) mm. thick.
Pileus with rusty-yellow shades, at least after losing moisture; stipe 5–8 (9) cm. long.
Universal veil and median zone on stipe whitish.
Context brittle; pileus cinnamon to bay-brown (moist), tawny to rusty-yellowish (dry). 148. *C. distans.*
Context watery-soft; pileus ochraceous to yellowish-tawny when moist. 149. *C. hinnuleus.*
Universal veil and zone on stipe yellow or fawn-colored.
Lamellae close; veil fawn-colored; pileus silky-shining (dry). 150. *C. mammosus.*
Lamellae distant; stipe 5–10 cm. long; veil yellow. 147. *C. gentilis.*
Pileus chestnut-brown to walnut-brown (moist).
Lamellae close, pinkish-buff at first; pileus 2–5 cm. broad, walnut-brown, fading. 156. *C. nigrellus.*
Lamellae subdistant to distant; plant becoming blackish in age or when dried.
Spores 10–12 (13) × 6–8 μ; pileus vandyke-brown (moist). 157. *C. punctatus.*
Spores 8–10 × 5–6 μ; pileus chestnut-brown (moist). 158. *C. glandicolor.*
Stipe 2–4 (5) mm. thick, or less.
Spores 10–12 μ long; annular zone of stipe white.
Stipe 5–9 (10) cm. long, slender.
Umbo blackish (moist); spores 10–12 × 5–6 μ. 160. *C. iliopodius.*
Umbo chestnut (moist); spores 9–11 × 6–7.5 μ. 161. *C. gracilis.*
Stipe 2–5 (6) cm. long.
Stipe solid, 3–6 cm. long; all parts becoming bister or fuscescent. 159. *C. bistreoides.*
Stipe hollow, 2–4 cm. long; all parts tending to chestnut-color. 162. *C. badius.*
Spores averaging less than 10 μ long.
Surface of pileus covered by dense fibrils.
Spores 8–10 × 4–5 μ; pileus 0.5–2 cm. broad, umber to chestnut. 163. *C. impolitus.*
Spores 6–8 × 4–5 μ.
Pileus watery-cinnamon (moist), 2–5 cm. broad. 168. *C. hemitrichus.*
Pileus fuscous (moist), 1–3 cm. broad. 169. *C. paleaceus.*
Surface of pileus subglabrous or naked, except the margin.
Lamellae saffron-yellow; veil yellow; spores 7–9 × 5 μ. 167. *C. paludosus.*
Lamellae at first cinnamon, brownish or yellowish-tinged.
Stipe 1–3 mm. thick; spores 6–7.5 × 3.5–4.5 μ; pileus dark-brown (moist). 164. *C. castaneoides.*
Stipe 3–5 mm. thick; spores larger.
Pileus at length lacerate-scaly, at first obtusely campanulate-convex, snuff-brown. 165. *C. incisus.*
Pileus remaining smooth, at first conic.
Lamellae conspicuously broad, thick; pileus army-brown to avellaneous. 166. *C. rigidus.*
Lamellae medium-broad, thin; pileus sepia, with a black, prominent umbo. 170. *C. nigrocuspidatus.*

VII. HYDROCYBE

Margin of pileus at first incurved; pileus mostly convex-explanate.
Stipe clavate, subclavate, sub-bulbous, ventricose, or tapering upwards, whitish or violaceous-tinged.
Stipe at first violaceous-tinged or drab, especially upward.
Pileus 2–4 cm. broad, sooty-olivaceous (moist); spores 7–8 × 5 μ. 171. *C. livor.*
Pileus 4–8 (10) cm. broad.
Spores 10–12 × 7–8 μ; pileus brownish-ferruginous mixed with violaceous hues (moist). 172. *C. ferrugineo-griseus.*
Spores 7–8 (9) × 5–6 μ.
Lamellae violaceous-purplish at first; growing in thickets and frondose woods. 173. *C. saturninus.*
Lamellae drab to Mikado-brown at first; stipe often equal; in coniferous forests. 174. *C. privignus.*

Stipe not violet-tinged.
Stipe subradicating or short-attenuate below the thickened or sub-bulbous lower end.
Lamellae terra-cotta-colored; pileus 3–5 cm. broad; in coniferous forests. 175. *C. illuminus.*
Lamellae pallid to watery-cinnamon; pileus 5–10 cm. broad; mostly in frondose woods. 176. *C. duracinus.*
Stipe not attenuate at base.
Spores globose, 6–7 × 6 μ; pileus chestnut-brown (moist), fading to cinnamon-buff. 177. *C. dilutus.*
Spores elliptic.
Lamellae at first slightly violaceous; pileus 2–5 cm. broad, watery-brown (moist), fading to reddish-ochraceous. 178. *C. regularis.*
Lamellae at first pallid-brownish; pileus 5–7 (10) cm. broad.
Spores 6–8 × 4–5 μ; lamellae soon cinnamon-brown; in frondose woods. 179. *C. glabrellus.*
Spores 8–9 × 5–5.5 μ; lamellae soon Mars-yellow (R); in coniferous forests. 180. *C. armeniacus.*
Stipe equal or attenuate downwards, or sometimes tapering slightly upwards.
Stipe white, whitish or violaceous, becoming pallid or dingy in age.
Stipe or at least the apex of stipe at first violaceous or lilaceous.
Stipe solid; lamellae violaceous at first; pileus alutaceous. 181. *C. imbutus.*
Stipe stuffed to hollow.
Lamellae at first violet; pileus dark-chestnut (moist), scarcely fading; spores 7–9 × 4–5 μ. 182. *C. castaneus.*
Lamellae at first pale-clay-colored; pileus chestnut-brown (moist), fading; spores 7–8 × 5.5–6 μ. 183. *C. laetior.*
Stipe white or pallid; pileus 2–5 (6) cm. broad.
Pileus umbonate.
Spores globose, 6–7 × 6 μ; pileus chestnut-brown, very hygrophanous. 177. *C. dilutus.*
Spores elliptic, 8–9 × 5–6 μ; pileus walnut-brown (moist), brownish-drab (dry). 174. *C. privignus.*
Pileus convex-explanate, not umbonate.
Stipe 2–4 mm. thick; pileus pale-alutaceous (moist); spores 7.5–9 × 5–6 μ. 184. *C. pallidus.*
Stipe 5–10 (12) mm. thick.
Stipe at first clavate, then elongate-equal; pileus grayish-brown, the disk fulvous (moist); in coniferous forests. 185. *C. erugatus.*
Stipe equal or tapering downward; pileus bay to chestnut and hoary (moist); in frondose woods. 186. *C. subrigens.*
Stipe lutescent, fuscescent, brunescent, or olivaceous, at least at maturity.
Stipe brunescent or fuscescent; pileus chestnut-brown to watery-cinnamon.
Spores 7–10 × 6.5 μ, subellipsoid; lamellae crowded. 187. *C. praepallens.*
Spores 6.5–7.5 × 4–5 μ; lamellae subdistant. 188. *C. juberinus.*
Stipe yellowish, lutescent or olivaceous-tinged.
Spores 7–9 (10) μ long; stipe rigid, brittle.
Pileus distinctly yellow-ocher after losing moisture. 189. *C. angulosus.*
Pileus variegated-umber and olive-ocher (R) while losing moisture. 190. *C. isabellinus.*
Spores 6–7 μ long; pileus orange-cinnamon to orange-buff (R) after losing moisture. 191. *C. renidens.*
Margin of pileus at first straight on stipe; pileus conic to campanulate; stipe equal and usually slender.
Lamellae and stipe at first dark-violet-brownish; spores 6–7 × 3–4 μ. 192. *C. fuscoviolaceus.*
Lamellae not violaceous.
Stipe 3–6 mm. or 4–9 mm. thick.
Margin of pileus long-striatulate when moist; lamellae broad, subdistant; pileus Sudan-brown (R), fading quickly. 193. *C. obtusus.*
Margin of pileus even; stipe 4–10 mm. thick.
Stipe fuscescent, in age blackish; lamellae subdistant, broad. 194. *C. uraceus.*
Stipe whitish, subradicating-subfusiform; pileus cinnamon-rufous (R), quickly fading. 195. *C. rigens.*
Stipe 2–4 mm. thick.
Margin of pileus definitely striatulate when moist.
Stipe attenuate downward, subradicating; pileus 1–2 cm. broad, honey-yellow (moist), fading quickly. 196. *C. scandens.*
Stipe equal; pileus 1–2.5 cm. broad, rufous-cinnamon (moist); lamellae at first pale-ochraceous. 197. *C. acutus.*

Margin of pileus even.
- Growing on decayed wood; pileus chestnut-fulvous (moist); spores 6–7 × 4–5 μ. — 198. *C. lignarius.*
- Growing on the ground or humus.
  - Stipe violaceous at the apex when young; pileus chestnut-brown, the umbo blackish (moist). — 199. *C. erythrinus.*
  - Stipe without violaceous color.
    - Lamellae more or less ochraceous.
      - Spores oblong, 7–8 × 3.5–4.5 μ; pileus roods-brown (R) when moist; lamellae ventricose. — 200. *C. leucopus.*
      - Spores ellipsoid, 8–10 × 6–7 μ; pileus pale-chestnut (moist); lamellae narrow. — 201. *C. acutoides.*
    - Lamellae brown, broad, subdistant; pileus vinaceous-brown (R) when moist. — 202. *C. germanus.*

1. **Cortinarius splendidus** Peck, Ann. Rep. N. Y. State Mus. **29**: 42. 1878.

Pileus somewhat fleshy, campanulate-convex, subexpanded and obtuse, then plane and irregular, 3–5 cm. broad; surface very viscid when fresh, glabrous, even or pellucid, substriate on the margin, at first liver-brown (R) to Saccardo-umber (R), fading to ochraceous-tawny (R) or cinnamon-buff (R); margin at first incurved; context very thin on the margin, thicker on the disk, light-pinkish-cinnamon (R) or faded, the odor and taste mild; lamellae adnate, 4–5 mm. broad, close, whitish to violet at first, then cinnamon-buff (R) or cinnamon-brown (R); stipe equal, cylindric, rarely slightly enlarged at base, rigid-elastic, but soft within, solid-stuffed, at first sheathed by a pale-violaceous, thin, appressed, glutinous universal veil, sometimes deep-violet-blue within, but fading quickly to almost white; cortina white, violaceous-tinged; spores almond-shaped, inequilateral, ovate-pointed at one end, tuberculate, 14–18 × 7–9 μ, dark-brown under the microscope.

TYPE LOCALITY: Vicinity of Albany, New York.
HABITAT: In regions of conifers or mixed woods.
DISTRIBUTION: New York to North Carolina; Colorado.

2. **Cortinarius cylindripes** C. H. Kauffman, Bull. Torrey Club **32**: 321. 1905.

Pileus fleshy, obtusely orbicular when young, then campanulate and expanded, rather small in comparison with the length of the stipe, 3–7 cm. broad; surface very glutinous at first and shining, later opaque, at the very first lavender, then yellowish with a violaceous tinge, at length brownish-ochraceous, somewhat stained by these colors at various stages, smooth, at length longitudinally wrinkled; margin incurved and pellucid-striate; context thick on the disk, thin elsewhere, violaceous, soon sordid-white, the odor and taste slight; lamellae rather broad, 5–8 mm., adnate, emarginate, not attenuate in front, violaceous or lavender when young, becoming pale-cinnamon, not crowded, thin, the edge serratulate-flocculose and paler, somewhat wrinkled at the sides but not veined; stipe elastic, remarkably equal, 8–10 cm. long, 5–9 mm. thick, covered by a violaceous, glutinous universal veil, which remains as evanescent, adnate patches and at its junction with the partial veil as a slight annulus, smooth or fibrillose-striate at the apex, violaceous to dingy-white within, solid-stuffed; spores almond-shaped, rough-tuberculate, inequilateral, ellipsoid, 12–15 × 6.5–8 μ, dark-brown.

TYPE LOCALITY: Ithaca, New York.
HABITAT: In frondose and coniferous forests.
DISTRIBUTION: New England to Minnesota and Canada, and southward to North Carolina.
ILLUSTRATIONS: Bull. Torrey Club **32**: 306. *f. 2;* Jour. Myc. **13**: *pl. 98;* C. H. Kauffman, Agar. Mich. *pl. 64.*

3. **Cortinarius elatior** Fries, Epicr. Myc. 274. 1838.

Agaricus elatus Fries, Syst. Myc. **1**: 248. 1821.

Pileus moderately fleshy on the disk, campanulate-expanded, discoid or subumbonate, 4–9 cm. broad; surface viscid, olive-ochre (R) to medal-bronze (R) when moist, the disk darkest, fading to dingy-yellowish-ochre (R), radiately plicate-wrinkled on the submembranaceous margin; context soft, thin except the disk, pallid, the odor and taste mild; lamellae adnexed-

emarginate, at first pale-campanula-blue (R), then cinnamon (R), and finally much darker, moderately broad, close, the edge remaining bluish longer, then white-flocculose; stipe ventricose-elongate, attenuate toward both ends, 5–9 cm. long, 10–15 mm. thick, sheathed at first by a viscid, pale-campanula-blue (R), appressed, subfloccose universal veil, white at the apex and base, striate-sulcate above the sheath, solid, deeply imbedded in humus and soil; spores almond-shaped, coarsely tuberculate, 12–15 × 7–9 μ.

TYPE LOCALITY: Sweden.
HABITAT: Under Douglas fir, cedar and hemlock, in higher mountains.
DISTRIBUTION: Common on Mount Rainier and the Olympic Mountains, Washington; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 741–742* (*736–737*); Fries, Ic. Hymen. *pl. 149, f. 1.*

4. **Cortinarius mucifluus** Fries, Ic. Hymen. *pl. 148, f. 1;* hyponym. 1880; C. H. Kauffman, Agar. Mich. 1: 328. 1918.

Cortinarius collinitus Gill. Champ. Fr. 457. 1876.
Agaricus collinitus Fries, Syst. Myc. 1: 248, in part. 1821.

Pileus fleshy, at the very first subglobose, then campanulate-convex, finally campanulate-expanded to plane, obtuse, 3–8 cm. broad; surface glutinous when moist, the gluten derived from the very thick gelatinous pellicle, varying in color from whitish when young to straw-yellow or tawny-fulvous, sometimes stained with rusty or sulphur hues, shining when dry; margin incurved; context pallid or stained in age with yellow or rust-color, the odor and taste slight; lamellae at first pallid or grayish-white (cesious), then clay-colored to rusty-cinnamon, adnate to subemarginate, moderately broad, close; stipe cylindric or tapering downward, rather stout from the first, 6–12 cm. long, 7–12 mm. thick, rigid, spongy-stuffed, at the very first whitish and covered by the thick gelatinous layer of a universal veil, the veil cracking transversely, forming scaly, thick, sometimes squarrose bands of dried gluten, especially below, soon becoming discolored and then yellowish, rusty, or tawny, terminating above with the discolored cortina in the form of a collapsed ring; spores almond-shaped, inequilateral-elliptic, tuberculate, 10–13 × 6–7 μ (rarely up to 14.5 μ), rusty-cinnamon in mass.

TYPE LOCALITY: Sweden.
HABITAT: Margin of swamps.
DISTRIBUTION: New England and Canada to Virginia and Minnesota; Colorado to Washington and Oregon; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 148, f. 1;* Cooke, Brit. Fungi *pl. 738* (*733*), *740* (*735*); Gill. Champ. Fr. *pl. 301* (*206*); Ricken, Blätterp. Deutschl. *pl. 34, f. 1;* Michael, Führer Pilzfr. 3: *pl. 85;* Ann. Rep. N. Y. State Mus. 48: *pl. 13, f. 1–6;* C. H. Kauffman, Agar. Mich. *pl. 63.*

5. **Cortinarius mucosus** (Bull.) Ricken, Blätterp. Deutschl. 126. 1911.

Agaricus mucosus Bull. Herb. Fr. *pl. 549, f. D, E, F.* 1791.
Agaricus collinitis mucosus Fries, Syst. Myc. 1: 248. 1821.
Cortinarius collinitis mucosus Fries, Epicr. Myc. 274. 1838.

Pileus fleshy, rather firm, convex, then expanded-plane or repand, obtuse, 4–7(–9) cm. broad; surface glutinous from the separable pellicle, shining when dry, glabrous, varying in color, kaiser-brown (R) and ochraceous-tawny (R) to yellow-ochre (R), or on the margin with some shade of yellow-ochre, sometimes Mars-orange (R), even or slightly wrinkled on the margin when expanded; margin at first incurved; context rather thick on the disk, quite thin on the margin, moist, whitish, the odor and taste mild; lamellae adnate or subdecurrent by a tooth, then subemarginate or sinuate, 5–7(–9) cm. broad, crowded, easily separable from the trama of the pileus, at first whitish, sometimes tinged pale-drab, becoming tawny (R) at maturity; stipe subequal, sometimes tapering downward, rather stout and short, 4–6(–7) cm. long, 12–20 mm. thick, whitish within and without, solid and rather soft-fleshy, at length hollowed by grubs, peronate by the viscid, appressed, white, universal veil, the apex silky, zoned at the upper margin of the sheath by the remains of the rather copious white cortina; spores subellipsoid-subfusiform, subinequilateral, pointed at one end, practically smooth (even

under highest magnifications), 12–15 or 13–16(–17) μ long, always narrower than in its relatives, 5–7 μ wide.

TYPE LOCALITY: France.
HABITAT: Under pines.
DISTRIBUTION: Maryland to Alabama.
ILLUSTRATIONS: Bull. Herb. Fr. *pl. 549, f. D, E, F;* Ricken, Blätterp. Deutschl. *pl. 34, f. 3;* Cooke, Brit. Fungi *pl. 739 (734).*

6. **Cortinarius muscigenus** Peck, Ann. Rep. N. Y. State Mus. **41**: 71. 1888.

Cortinarius elatior pallidifolius Peck, Ann. Rep. N. Y. State Mus. **54**: 151, *pl. G, f. 22–26.* 1901.

Pileus fleshy, ovate, then convex or concave from the recurving of the margin, subumbonate, 3–6 cm. broad; surface glabrous, viscous with a separate pellicle, tawny-orange and widely striate on the margin when moist, tawny and shining when dry; context dingy-white, tinged with yellow; lamellae broad, ventricose, adnate, with a broad, shallow emargination, somewhat rugose on the sides, yellowish, becoming cinnamon; stipe elongate, subequal, 7–10 cm. long, 6–8 mm. thick, viscid, even, silky, solid, white or whitish; spores almond-shaped, rough-tuberculate, 14–17 × 1–9 μ (rarely up to 18.5 μ long).

TYPE LOCALITY: Wittenberg Mountain, New York.
HABITAT: Coniferous forests.
DISTRIBUTION: New England, New York, and New Jersey.

7. **Cortinarius griseoluridus** C. H. Kauffman, Papers Mich. Acad. **1**: 134. 1923.

Pileus fleshy, broadly convex, then expanded, obtuse, rarely subumbonate, 5–8(–10) cm. broad; surface with a distinct glutinous pellicle, at first light-Quaker-drab (R) especially on margin, elsewhere becoming olive-ocher (R) on a smoky-gray (R) ground-color, even, glabrous at first, at length scaly-spotted or variegate-virgate from the drying gluten; margin at first incurved, then spreading, sometimes more purplish-tinged; context very thick on the disk, abruptly thin on the margin, soft, moist, at first tinted violaceous-gray, then watery-whitish with a tint of ocher-olive (R) under pellicle, the odor and taste mild; lamellae adnate-subdecurrent then emarginate with a tooth, close to crowded, moderately broad, at first pale-vinaceous-drab (R), soon avellaneous (R), finally rusty-brown, the edge minutely crenulate; stipe stout, often tapering upward from a clavate base, 4–9 cm. long, 10–20 mm. thick at apex, sometimes subequal and longer, sometimes with a large oval bulb and shorter, terete or compressed, firmly stuffed to hollow, at first violaceous-tinged within and without, the apex at first flocculose-furfuraceous, and soon white, elsewhere covered by the thin, viscid, appressed, subconcentric, grayish-lutescent patches from the glutinous universal veil, the bulb up to 30 mm. thick at times, and often abruptly short-pointed below; spores broadly ellipsoid-ovoid to subglobose, thick-walled, obscurely subreticulate-roughish, 8–10 × 7–8.5 μ, pale-rusty under microscope.

TYPE LOCALITY: Leal, Grand County, Colorado.
HABITAT: Under conifers in mountain forests.
DISTRIBUTION: Colorado.

8. **Cortinarius submarginalis** Peck, Bull. N. Y. State Mus. **10**: 950. 1902.

Pileus fleshy, firm, convex, becoming nearly plane, concave by elevation of the margin, 5–10 cm. broad; surface viscid when moist, yellowish-brown, generally a little paler on the rather definite and commonly fibrillose margin; context white; lamellae thin, close, rather broad, adnate, creamy-yellow when young, soon cinnamon; stipe elongate, equal or slightly thickened at the base, 7–15 cm. long, 8–12 mm. thick, solid, silky-fibrillose, slightly viscid, whitish or pallid; spores almond-shaped, slightly rough, 10–12.5 × 5–6 μ.

TYPE LOCALITY: Bolton, New York.
HABITAT: In woods.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Bull. N. Y. State Mus. **10**: *pl. L, f. 6–10.*

9. **Cortinarius sphaerosporus** Peck, Ann. Rep. N. Y. State Mus. **26**: 61. 1874.

Pileus fleshy, hemispheric-convex, then expanded-plane, 3–7 cm. broad; surface glabrous, even, with a thick gelatinous straw-yellow pellicle, the pellicle glutinous when moist; context thin on the margin, violaceous at first, soon pallid; lamellae violaceous at the very first, soon whitish then cinnamon, adnate-subemarginate, close, rather broad; stipe subclavate or tapering upward, equal above, 5–10 cm. long, 5–8 mm. thick, spongy-stuffed, glutinous when moist from the thin universal veil, this on drying leaving thin yellowish patches on the lower portion, the apex at first pale-violaceous, soon white; spores ovoid-subglobose, slightly rough-punctate, 6–7.5 × 5.5–6.5 μ.

TYPE LOCALITY: Croghan, New York.
HABITAT: Moist coniferous woods or swamps.
DISTRIBUTION: New England, New York, Canada, and Michigan.
ILLUSTRATION: C. H. Kauffman, Agar. Mich. *pl. 65*.

10. **Cortinarius delibutus** Fries, Epicr. Myc. 276. 1838.

Pileus fleshy, thin, the disk thicker, hemispheric, then convex-expanded, obtuse, 3–8 cm. broad; surface glabrous, even, covered when fresh by the glutinous, aniline-yellow (R) to amber-yellow (R) universal veil, sometimes paler; context white, soft; lamellae adnate, thin, moderately broad, close to crowded, cesious-pallid at first, then clay-colored (R), the edge entire; stipe tapering upward to subequal, sometimes sub-bulbous, 4–7 cm. long, 5–8(–10) mm. thick, whitish at the apex, elsewhere covered by the thin, adnate, pale-yellow sheath or remains of the glutinous veil, stuffed-solid, hollow at the apex, white and moist within, the apex furfuraceous-glabrescent, elsewhere shining when dry; spores subspheroid, minutely rough, 7–8.5 × 6–7.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On moss under conifers, in mountain forests, 2700 meters elevation.
DISTRIBUTION: Colorado; also in Europe.
ILLUSTRATIONS: Ricken, Blätterp. Deutschl. *pl. 35, f. 4;* Cooke, Brit. Fungi *pl. 743 (741);* Grevillea *pl. 108, f. 2.*

11. **Cortinarius sterilis** C. H. Kauffman, Bull. Torrey Club **32**: 321. 1905.

Pileus fleshy, suborbicular when young, then convex-expanded, somewhat umbonate at times, 1.5–4.5 cm. broad; surface drab-gray to olive-buff, even, smooth, viscid, the margin incurved; context white, soft, thin; lamellae drab-gray at first, then light-cinnamon, rounded behind, then emarginate, not at all ventricose, rather crowded, the edge serratulate and white, later eroded, provided with sterile cells, relatively broad, 4–6 mm.; stipe clavate or tapering upward, 4–8 cm. long, 4–6 mm. thick or at base up to 10 mm., solid, spongy, dingy-white, tinged with light-blue toward the apex, clothed when fresh with the delicate patches of the viscid universal veil of the same color as the pileus within, pale-bluish at apex, white below; cortina white or sordid; spores subspheroid, almost smooth, 6–7 × 5–6.5 μ.

TYPE LOCALITY: Ithaca, New York.
HABITAT: Swampy places, in coniferous forests.
DISTRIBUTION: New York, Canada, and Michigan; Washington and Oregon.
ILLUSTRATIONS: Bull. Torrey Club 32: 304. *f. 1;* Jour. Myc. 13: *pl. 96.*

12. **Cortinarius vibratilis** Fries, Epicr. Myc. 277. 1838.

Agaricus vibratilis Fries, Syst. Myc. **1**: 227. 1821.
Cortinarius (*Phlegmacium*) *amarus* Peck, Ann. Rep. N. Y. State Mus. **32**: 30. 1880.
Myxacium amarum Peck, Bull. N. Y. State Mus. **1**[2]: 14. 1888.

Pileus fleshy, convex, obtuse, gibbous, 2–5 cm. broad; surface bitter, with a glutinous pellicle, hygrophanous, yellow, ocher-yellow to fulvous-yellow, paler when dry, glabrous, even; context soft, thin except disk, white or whitish, intensely bitter; lamellae adnate to slightly subdecurrent or submarginate, thin, close, rather narrow, pallid to pale-ochraceous, then pale-

ochraceous-cinnamon; stipe variable in length, subclavate to tapering either way, 3–7 cm. long, 4–10 mm. thick, soft, pure-white, often viscid only at the base, stuffed, clothed when young by a glutinous, hyaline, universal veil, soon drying; spores narrowly ellipsoid, almost smooth, 6–7.5 × 4–5 μ.

TYPE LOCALITY: Sweden.
HABITAT: Humus in rich woods, in frondose and coniferous forests.
DISTRIBUTION: New England to Minnesota and southward; Colorado; Idaho and the northern Pacific states; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 744 (743)*; Gill. Champ. Fr. *pl. 302 (256)*; Ricken, Blätterp. Deutschl. *pl. 35, f. 2*.

13. **Cortinarius iodes** Berk. & Curt. Ann. Mag. Nat. Hist. II. **12**: 423. 1853.

Pileus fleshy, campanulate-convex, 2–6 cm. broad; surface glabrous, even, with a tough, viscid, separable pellicle, dark-violet to purplish, at length often yellowish on the disk; context thick on the disk, abruptly thin on the margin, violaceous then paler, the taste and odor none; lamellae adnate, close, moderately broad, violaceous at first, then gray-cinnamon; stipe equal, clavate-thickened or tapering to either end, 5–7 cm. long, 4–8 or 5–15 mm. thick, viscid, solid, subfibrillose; spores broadly ellipsoid, minutely rough-punctate, 8–10 × 6–6.5 μ.

TYPE LOCALITY: South Carolina.
HABITAT: Low woods.
DISTRIBUTION: New England to South Carolina.

14. **Cortinarius iodeoides** C. H. Kauffman, Agar. Mich. **1**: 335. 1918.

Pileus convex, then expanded, broadly umbonate to plane, 2–5 cm broad; surface deep lavender-violet or bluish when young or fresh, fading to livid-ashy, sometimes faintly-yellowish or buff-spotted, with a bitter pellicle glutinous when moist or young, glabrous, even; context at first pale-violaceous, soon white, thin on the margin, thickish on the disk; lamellae adnate, then emarginate, rather narrow, close, pale-violaceous, soon whitish, at length pale-ochraceous-cinnamon; stipe clavate-thickened at base, 2–6.5 cm. long, 4–8 mm. thick, variously covered when young by the thin, delicately violaceous, glutinous, universal veil, stuffed, silky or glabrous; spores ellipsoid, almost smooth, 7–7.5 × 4–4.5 μ, pale-ferruginous-cinnamon in mass.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: Frondose woods, among leaf-mold.
DISTRIBUTION: Eastern United States to Wisconsin.
ILLUSTRATION: C. H. Kauffman, Agar. Mich. *pl. 66*.

15. **Cortinarius heliotropicus** Peck, Bull. N. Y. State Mus. 94: 22. 1905.

Pileus fleshy, broadly campanulate, convex, or nearly plane, 2.5–6.5 cm. broad; surface fibrillose, viscid, heliotrope-purple, generally spotted or variegated by yellowish-white spots; context whitish, thin, the taste mild or slightly acrid, the odor slightly that of radish; lamellae narrow, thin, close, rounded behind, adnexed, concolorous with the pileus when young, cinnamon when mature; stipe firm, solid or spongy within, usually slightly thickened at the base, 3.5–7 cm. long, 4–8 mm. thick, silky-fibrillose, viscid, whitish and spotted with purple, or colored like the pileus, white within; spores ellipsoid, 10–12.5 × 5–6 μ.

TYPE LOCALITY: Smithtown, New York.
HABITAT: Woods.
DISTRIBUTION: New England and New York.
ILLUSTRATION: Bull. N. Y. State Mus. 94: *pl. P, f. 1–6*.

16. **Cortinarius Atkinsonianus** C. H. Kauffman, Bull. Torrey Club **32**: 324. 1905.

Pileus fleshy, convex, then expanded, 6–9 cm. broad; surface wax-yellow or flavous at first, tinted with olive, then alutaceous or reddish-tawny in places, with a viscid separable

pellicle, glabrous, even; context thick, rather soft, at first deep-violet or lavender, slowly fading, the taste and odor mild; lamellae adnate, becoming slightly sinuate, rather narrow, of uniform width, deep-violet or purplish at first, the edge sometimes olivaceous-yellowish, at length cinnamon; stipe 6–8 cm. long, stout, 12–18 mm. thick, deep-violet or violaceous-blue, concolorous within, solid, dry, equal or tapering upward from a rather thick, marginate, broadly turbinate bulb up to 3 cm. thick, and externally clothed by the olivaceous-yellow universal veil, the apex of stipe fibrillose, elsewhere hung with fibrillose remains of the olivaceous-yellow cortina; spores almond-shaped, ellipsoid, very tuberculate, 13–15 (rarely 16) × 7–8.5 μ, rusty-cinnamon in mass.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On the ground, in coniferous and mixed forests.
DISTRIBUTION: New England to Michigan; Colorado.
ILLUSTRATIONS: Bull. Torrey Club **32**: 316. *f. 6;* Jour. Myc. **13**: *pl. 99;* C. H. Kauffman, Agar. Mich. *pl. 67*.

17. **Cortinarius arquatus** Fries, Epicr. Myc. 265. 1838.

Pileus fleshy, broadly convex, obtuse, expanded, regular, 4–8 cm. broad; surface viscid, glabrous, even, antimony-yellow (R), the disk often darker; context somewhat thick on the disk, slightly thinner on the margin, white, lutescent, the odor and taste mild; lamellae adnate, sometimes decurrent by lines, at length seceding, close to crowded, broad, 8–12 mm., violaceous or subpurpureous at first, then clay-colored (R), the edge suberose; stipe equal, the base bulbous by a volva-like universal veil leaving a free limb, solid, slightly fibrillose, the apex sometimes striate-ridged, and violaceous at first within and without, whitish downward, lutescent at base; spores broadly elliptic to subamygdaliform, punctate-rough, 11–14(–15) × 6–8 μ, variable in size, rusty-brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under conifers, in mountain forests.
DISTRIBUTION: Colorado; also in Europe.
ILLUSTRATION: Ricken, Blätterp. Deutschl. *pl. 36, f. 4*.

18. **Cortinarius purpureophyllus** C. H. Kauffman, Agar. Mich. 1: 348. 1918.

Pileus fleshy, convex-expanded, 5–8 cm. broad; surface dull-tawny-red, fading to ochraceous-fulvous, glabrous, even, with a viscid, separable pellicle, the margin incurved; context whitish, thick, compact, the odor slight, the taste slowly disagreeable, somewhat bitter; lamellae rounded behind and adnexed, deep-lilac-purple, the color persistent, narrow, crowded, thin, the edge entire or suberoded; stipe equal or slightly narrower upward, 4–6 cm. long, 12–18 mm. thick, pallid or at first slightly tinged lilac-violaceous, spongy-stuffed or solid, fibrillose from the cortina, the apex violaceous within, with a marginate-depressed flattish bulb, the bulb white throughout, attached to a white mycelium; cortina copious; spores almond-shaped, ellipsoid, tuberculate, 10–12 × 6–7 μ, rusty-cinnamon in mass.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: On the ground, in frondose woods.
DISTRIBUTION: Michigan.

19. **Cortinarius lilacinopes** Britz. Bot. Centr. **62**: 307. 1895.

Pileus fleshy, broadly convex, then expanded, obtuse or subumbonate, 7–9 cm. broad; surface viscid, glabrous, even, antimony-yellow (R) to yellow-ocher (R), sometimes tawny-spotted from the drying gluten; context slightly and somewhat equally thick, the margin very thin, tinged incarnate or buff-pink (R), the odor slight, the taste slightly disagreeable; lamellae attenuate-adnate, narrow, attenuate in front, crowded, buff-pink (R) to vinaceous-fawn (R), then darker, the edge entire; stipe tapering upward from a large, marginate, subdepressed bulb, 6–9 cm. long, 12–20 mm. thick above, the bulb up to 30 mm. thick, firm, compact and at first with buff-pink (R) tints within, surface white at least downward, glabrescent, the apex fibrillose-silky above the annular zone formed from the copious cortina; spores sub-

ellipsoid, almond-shape, reticulate-rough under highest magnifications, 11–13(–14) × 6–7 (–8) μ, dark-rusty.

TYPE LOCALITY: Bavaria, Germany.
HABITAT: Under conifers, in mountain forests.
DISTRIBUTION: Colorado; also in Europe.

20. **Cortinarius velicopia** C. H. Kauffman, Agar. Mich. 1: 339. 1918.

Pileus fleshy, convex at first, soon broadly expanded to plane, 6–9 cm. broad; surface violet to buff at first, becoming dingy-yellowish-ochraceous as if stained, with a viscid, separable pellicle, even, glabrous, the margin incurved and at first appendiculate from the copious cortina; context pale-blue-violaceous, soon white, thick, moderately compact, the odor and taste mild; lamellae narrowed behind, narrowly adnate, moderately broad, close, at length dingy-yellowish or pallid, then cinereous, finally rusty-cinnamon, the edge minutely fimbriate, provided with sterile, inflated cells; stipe 6–8 cm. long, 8–18 mm. thick, violaceous-blue, fading to bluish, at length dingy-yellowish or pallid, hung with fibrillose remains of the cortina, dry, equal, solid, with a marginate, subdepressed, hemispheric bulb clothed by a thin ochraceous-buff universal veil; cortina very copious; spores ventricose-ellipsoid, with a prominent, papillate apiculus, very tuberculate, rather symmetric, 9–12 × 6–7 μ.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: On the ground, in frondose woods.
DISTRIBUTION: Michigan.

21. **Cortinarius michiganensis** C. H. Kauffman, Agar. Mich. 1: 350. 1918.

Pileus fleshy, compact, firm, broadly convex, then slowly expanded, 8–14 cm. broad; surface pale-violaceous to lilac, unicolorous, the color persistent, glabrous, even, glutinous when moist or young, then viscid, the margin persistently inrolled and tomentose-silky; context very thick, white or tinged with lilac, not changed by bruising, the odor and taste mild; lamellae rounded behind and adnexed, or almost free, narrow, crowded, thin, acuminate in front, pale-violaceous-white at first, then pale-ashy, finally ochraceous-cinnamon, the edge serratulate from the first; stipe stout, solid, 3–6 cm. long, 18–30 mm. thick, pale-violaceous-lilac to whitish, fibrillose from the cortina, marginate-bulbous, the bulb large, up to 4 cm. broad, white beneath, the flesh white except the violaceous apex; cortina bluish-white, at first attached to the bulb, evanescent, not copious; spores narrowly ellipsoid-ovoid, almost smooth, 8–10.5 × 4.5–5.5 μ, pale-ochraceous-cinnamon in mass.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: On the ground, in frondose woods.
DISTRIBUTION: New York to South Carolina, and westward to Wisconsin.

22. **Cortinarius subpurpurascens** Fries, Epicr. Myc. 265. 1838.

Cortinarius purpurascens subpurpurascens Fries, Hymen. Eur. 346. 1874.

Pileus fleshy, firm, campanulate, discoid or gibbous, then expanded, at length depressed, 5–10 cm. broad; surface viscid, purple-tinged at first, yellow-ocher to ochraceous-tawny with smoky-brown stains, scarcely virgate, glabrous, zoned by the decurved margin; context soon whitish, not changing to purple when bruised, compact, the odor slightly that of radish, somewhat pungent, the taste mild; lamellae adnexed-emarginate, crowded, rather narrow, purplish at first, then pecan-brown (R), becoming purplish when bruised, the edge entire; stipe subequal above the rather small, depressed-marginate, flattened bulb, 5–7 cm. long, 10–15 mm. thick, pale-violaceous, purplish where bruised, violaceous within, cortinate-fibrillose, stuffed, then tubular; spores ellipsoid-ovoid, rough, 8–9 × 5–6 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in coniferous forests.
DISTRIBUTION: Adirondack Mountains, New York; Olympic Mountains, Washington.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 725* (*712*); Ricken, Blätterp. Deutschl. *pl. 36, f. 3* (as *C. purpurascens*).

23. **Cortinarius purpurascens** Fries, Epicr. Myc. 265. 1838.

Agaricus purpurascens Fries, Obs. Myc. 2: 70. 1818.

Pileus fleshy, broadly convex to subexpanded, 5–8 cm. broad; surface dark-purplish-umber or entirely violet-purple when young, soon discolored and variegated with clay-color or brown, opaque, glabrous, even, with a viscid, separable pellicle; context thick, compact, tinged azure or purplish, fading to whitish in age, but changing rapidly to deep-purple when bruised, the odor and taste mild; lamellae adnexed and rounded behind, then emarginate, rather narrow, close, at first azure-blue or darker, changing to deep-purple when bruised; stipe usually short, stout, 2–5 cm. long, 10–20 mm. thick, solid, subequal, fibrillose from the cortina, the bulb not large, subemarginate to distinctly marginate, scarcely ever depressed, soon oval, purplish within, quickly deeper-colored when bruised; spores ellipsoid-ovoid, rough-echinulate, 8–9.5 (rarely 10) × 5–5.5 μ, dark in mass.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in mixed forests.
DISTRIBUTION: New England to Wisconsin, and southward to North Carolina; Colorado.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 723 (710)*; Gill. Champ. Fr. *pl. 309 (244)*; C. H. Kauffman, Agar. Mich. *pl. 71*.

24. **Cortinarius sphaerosperma** C. H. Kauffman, Agar. Mich. 1: 347. 1918.

Pileus fleshy, large, broadly convex-expanded, 8–16 cm. broad; surface very viscid, with a separable pellicle, glabrous, even, deep-violet-purple, micaceous-shining when dry; context soon whitish, changing to purple when bruised, thick, compact, the odor slightly that of radish, the taste mild; lamellae adnate, then sinuate-subdecurrent, crowded, not broad, purple at first, then rusty-umber; stipe solid, stout, 6–9 cm. long, 15–20 mm. thick, dry, hung with the dense, spore-stained fibrils of a very copious purplish cortina, deep-purple like the cap, the rather small bulb subemarginate and disappearing, at length clavate-bulbous, whitish within, becoming purple when bruised; spores spheric or subspheroid, very tuberculate-rough, 7–8.5 × 7–7.5 μ, dark-ferruginous in mass.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: On the ground, in frondose woods.
DISTRIBUTION: Michigan.
ILLUSTRATION: C. H. Kauffman, Agar. Mich. *pl. 70*.

25. **Cortinarius caesiocyaneus** Britz. Bot. Centr. **62**: 307, in part. 1895; **80**: 58, in part. 1899; Maire, Bull. Soc. Myc. Fr. **26**: 176. 1910.

Pileus fleshy, convex, then expanded-plane, sometimes depressed in the center, 5–12 cm. broad; surface bluish-violaceous-white to silvery-violaceous, glabrous, even, with a viscid, separable pellicle, silky-shining when dry, the margin becoming silky and at first incurved; context pale-violet, fading slowly, thick, the odor and taste mild; lamellae rather narrow, adnexed, rounded behind then sinuate, thin, pale-violaceous, soon pale-alutaceous, then cinnamon, crowded, the edge even or becoming eroded; stipe stout, 4–7 cm. long, 1–2 cm. thick, solid, pale-violaceous-white, concolorous within, equal above the large, flattened, marginate-depressed bulb, the bulb white on the surface from the white universal veil, attached to white mycelium; cortina violaceous-white; spores almond-shaped, ellipsoid, tuberculate, 10–12 (rarely 13) × 6–7 μ, cinnamon in mass.

TYPE LOCALITY: Bavaria, Germany.
HABITAT: In frondose or coniferous woods, on the ground among fallen leaves.
DISTRIBUTION: Northeastern North America to Missouri; Colorado; California.
ILLUSTRATION: Bull. Soc. Myc. Fr. **26**: *pl. 8, f. 1–2*.

26. **Cortinarius aggregatus** C. H. Kauffman, Agar. Mich. 1: 346. 1918.

Pileus fleshy, convex, then subexpanded, obtuse and usually irregular from crowding, at length undulate, 5–12 cm. broad; surface glabrous or white-pruinose when young, at first

bright-purple-blue to purplish-gray, at maturity becoming smoky-olive-gray and streaked, with a viscid pellicle, the margin at first incurved; context thick, violaceous then faintly olivaceous-gray to dingy-white, not turning purple when bruised, the odor and taste mild; lamellae adnexed and rounded behind, then emarginate, close, moderately broad, violet-purple at first, then gray to cinnamon; stipes cespitose, each rather short, 4–7 cm. long, 10–20 mm. thick, solid, dry, purplish, darker at the base, the small bulb at the very first submarginate, not depressed, disappearing during development; cortina deep-violaceous, rather copious, attached to bulb at first, collapsing on the stem; spores narrowly ellipsoid, 7–8 × 4–4.5 μ.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: Among decaying leaves, in frondose woods.
DISTRIBUTION: Michigan.

27. **Cortinarius caerulescens** Fries; Maire, Bull. Soc. Myc. Fr. 27: 424. 1912.

Cortinarius caerulescens Fries, Epicr. Myc. 265, in part. 1838.

Pileus fleshy, convex, then convex-plane, quite thick, 3–6 cm. broad; surface with a separable, viscid pellicle, glabrous, even, violaceous-blue, ochraceous-tinged on the disk, sometimes entirely ochraceous-yellow, not hygrophanous, the margin at first incurved, pubescent and white, then spreading and violaceous; context pale-violaceous-blue, especially under the cuticle, then whitish, at length ochraceous-stained, the odor slight, the taste mild; lamellae arcuate, then plane or slightly ventricose, attenuate in front, rounded behind, thin, broad, rather broadly adnate, violet-amethyst or violet-blue at first, then rusty-brown, the edge serratulate; stipe cylindric-conic, 3–5 cm. long, 10 mm. thick, with a marginate bulb, fibrous-fleshy, dry, silky-fibrillose, violaceous-blue to amethyst-blue, the bulb white, solid; cortina violaceous at first; universal veil rapidly evanescent; spores subamygdaliform, ellipsoid, tuberculate, 12–14 × 6–7 μ.

TYPE LOCALITY: Sweden.
HABITAT: In coniferous and mixed forests.
DISTRIBUTION: Tennessee; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 722 (709)*; Grevillea *pl. 105, f. 3;* Bull. Soc. Myc. Fr. 26: *pl. 8, f. 3–5.*

28. **Cortinarius metarius** C. H. Kauffman, Papers Mich. Acad. 1: 137. 1923.

Pileus fleshy, convex-expanded, then plane, 4–7(–8) cm. broad; surface viscid, at the very first pale-bluish-violaceous, quickly lutescent, then mustard-yellow (R), Naples-yellow (R) or apricot-yellow (R), glabrous, even, the margin incurved and minutely tomentose, thin; context moderately thick on the disk, moist and tinged with violaceous-incarnate tints, quickly whitish then lutescent, the odor and taste mild or slight; lamellae adnexed, rounded behind, then sinuate-uncinate, narrow, 4–6(–7) mm., crowded, at first incarnate or amethystine, heliotrope-gray (R), soon fading and becoming pale-clay-colored (R); stipe solitary, subequal above the shallow and broadly marginate-depressed bulb, 4–6 cm. long, 10–18 mm. thick, sometimes compressed-subturbinate, solid, at first more or less violet within and without, the bulb covered by remnants of the yellowish universal veil (as in *C. callochrous*), superficially fibrillose above the bulb from the cortina; spores narrowly subellipsoid, inequilateral, almost smooth, 9–12 (rarely 13) × 5–6 μ, pale-yellowish-rusty under the microscope.

TYPE LOCALITY: Leal, Grand County, Colorado.
HABITAT: In mountain forests of spruce and fir.
DISTRIBUTION: Colorado.

29. **Cortinarius callochrous** Fries, Epicr. Myc. 265. 1838.

Agaricus callochrous Fries, Obs. Myc. 2: 68. 1818.

Pileus not large, convex, soon expanded-plane, 3–6 cm. broad; surface bright ocher-yellow to citron-yellow, fulvous on disk, with a viscid pellicle, glabrous, even; context thickish, rather compact, whitish; lamellae emarginate-adnexed, crowded, thin, rather narrow, rosy-violet to

violaceous-purple at first, at length pale-clay-cinnamon, the edge serratulate; stipe 3–5 cm. long, 5–9 mm. thick, solid, pale-violaceous or whitish at first, soon becoming dingy-yellowish, equal above the rather small, abrupt, marginate-depressed, shallow bulb, the bulb clothed at first by the yellow universal veil; spores subinequilateral, ellipsoid, 8–9 (rarely 10) × 4–5.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in woods of beech and maple.
DISTRIBUTION: New York to Virginia, and westward to Michigan; also in Europe.
ILLUSTRATIONS: Gill. Champ. Fr. *pl. 306 (200)*; C. H. Kauffman, Agar. Mich. *pl. 68*.

30. **Cortinarius glaucopoides** C. H. Kauffman, Papers Mich. Acad. 1: 133. 1923.

Pileus fleshy, convex, obtuse, then expanded-plane, the margin decurved, often irregular from crowding, 5–10 cm. broad; surface with a viscid, separable pellicle, glabrous, even, antimony-yellow (R) to pale-orange-yellow (R), unicolorous, deeper-lutescent with age, not streaked; margin at first incurved; context thick, abruptly thinner on the margin, white or whitish at first, distinctly lutescent, the odor slight but penetrating, the taste mild; lamellae adnate-emarginate with a tooth, somewhat narrow to moderately broad, 5–8(–9) mm., close to crowded, at first pale-vinaceous-drab (R), becoming ochraceous-tawny (R), the edge suberose; stipe cespitose or in gregarious clusters, straight or curved, 4–7 cm. long, 10–15 mm. thick, subequal above the small, abrupt, oblique, marginate bulb, solid, at first slightly superficially fibrillose from the whitish cortina, or innately silky, white or whitish, sometimes tinged with drab (R) at the apex, lutescent toward base within and without, the bulb flattened beneath; spores narrowly ellipsoid, almost smooth under even the highest magnification, 8–9 × 4–5 μ, pale-rusty-brown.

TYPE LOCALITY: Leal, Grand County, Colorado.
HABITAT: Under conifers, in mountain forests.
DISTRIBUTION: Colorado.

31. **Cortinarius glaucopus** Fries, Epicr. Myc. 264. 1838.

Agaricus glaucopus Fries, Syst. Myc. 1: 224. 1821.

Pileus fleshy, convex, then expanded-plane, firm, rigid, the margin geniculate and often wavy, 5–12 cm. broad; surface viscid or glutinous, variegated, fulvous-streaked on a slate-gray or steel-gray ground-color, the margin greenish-gray and at first inflexed, the disk fulvous; context whitish then yellowish-tinged, thick, compact, the odor and taste mild; lamellae adnexed, then emarginate, moderately broad, close to crowded, at first violaceous-blue, finally clay-cinnamon; stipe cespitose-gregarious, rigid, 5–10 cm. long, sometimes short, 15–25 mm. thick, pallid with a pale-violaceous-blue tinge, becoming yellowish in age, violaceous-bluish to whitish within then sordid-yellowish, solid, almost equal above the abrupt, marginate, scarcely bulbous base, attached to a white mycelium; spores almond-shaped, subinequilateral, slightly rough-punctate, 8–9 × 4–5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in frondose woods.
DISTRIBUTION: Eastern United States to Wisconsin; also in Europe.

32. **Cortinarius montanus** C. H. Kauffman, sp. nov.

Pileus fleshy, broadly convex to subhemispheric, then expanded and discoid with decurved margin, 5–10 cm. broad; surface viscid from the thick adnate pellicle, glutinous when wet, at first variegated-hazel (R) and dresden-brown (R) with light-yellowish-olive (R) margin, becoming tawny (R) or ochraceous-tawny (R) to clay-colored (R), umber on the margin, even, glabrous; context up to 15 mm. thick, rather compact, abruptly thin on the margin, whitish or with a tinge of the color of the pileus, the odor and taste mild; lamellae emarginate-adnexed, at first adnate, rather narrow, 5–7(–8) mm., close, at first light-yellowish-olive (R) or olivaceous, at length buffy-olive (R) to Prout-brown (R), the edge entire; stipe firm, 4–7 cm. long, 10–20(–25) mm. thick, delicately white-silky-fibrillose, stuffed by white fibrous pith then hollow, the surface at first pale-Windsor-blue (R) to pearl-blue (R), concolorous within, equal

above the prominent, emarginate-depressed, oblique bulb, the bulb much thicker, at first covered by the light-chalcedony-yellow (R) universal veil, soon sordid, becoming soft-spongy; spores ellipsoid, subinequilateral, tuberculate, 9–11 (rarely 12) × 5.5–6.5(–7) μ, light-rusty-brown under the microscope. (See page 348.)

TYPE collected among humus, in dense coniferous forests of cedar and hemlock, Welches, Oregon, October 3, 1922, *C. H. Kauffman* (herb. Univ. Mich.).
DISTRIBUTION: Cascade and Olympic mountains, Oregon and Washington.

33. **Cortinarius scaurus** Fries, Epicr. Myc. 312. 1838.

Agaricus scaurus Fries, Syst. Myc. 1: 223. 1821.

Pileus fleshy, convex, obtuse or broadly subumbonate, at length plane or depressed, commonly small, the width much narrower than the length of stipe, 3–6(–8) cm. broad; surface viscid, glabrous, even or short-striate on the margin in age, Dresden-brown (R) at first or darker, at length tawny (R), sometimes when dry spotted on the disk from drying gluten; margin at first incurved and slightly fibrillose from the citrine-yellow cortina; context moderately thick on the disk, thin on the margin, rather soft, moist, strongly tinged by the color of the pileus; lamellae adnexed, becoming emarginate, narrow, 3–5 mm., crowded, at first mignonette-green (R) then tawny-olive (R), transversely rivulose at times, the edge entire; stipe strict, 6–10 cm. long, 8–10 mm. thick at apex, equal or tapering upward from the rather narrow, hemispheric, marginate, subdepressed bulb, at first solid or firmly stuffed, becoming soft and spongy, innately fibrillose-silky, glabrescent, Russian-blue (R) within and without, except the pallid or soon whitish base, fading and then shining, the bulb 15–25 mm. broad, at first covered by the straw-yellow (R) to citron-yellow (R) remnants of the universal veil; spores ellipsoid, subinequilateral, rough and subreticulate by interrupted ridges under highest magnification, 8.5–10 × 5–6 μ, rusty-brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under Douglas fir and hemlock, in mountain forests.
DISTRIBUTION: Olympic Mountains, Washington.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 146, f. 1;* Grevillea *pl. 107, f. 1;* Ricken, Blätterp. Deutschl. *pl. 37, f. 5.*

34. **Cortinarius herpeticus** Fries, Epicr. Myc. 268. 1838.

Pileus fleshy, convex, subexpanded, firm, 5–10 cm. broad; surface Dresden-brown (R) to tawny (R) or smoky-olive, then tawny-olive (R) or clay-colored, with a viscid or glutinous separable pellicle, shining when moist, opaque when dry, even, glabrous; margin at first incurved, thin; context thick, firm, abruptly thin on the margin, at first purplish, soon vinaceous-gray (R), then whitish; lamellae rounded behind, adnexed-emarginate, close to crowded, not broad, at first dusky-slate-violet (R) or olivaceous, then tawny-olive (R) to clay-colored (R) or darker; stipe 4–8 cm. long, 1–2 cm. thick, slate-violet (R) to lavender-purplish, concolorous within, fibrillose from the whitish cortina, whitish on the bulb, equal above the marginate-depressed bulb, the bulb somewhat thicker; spores subellipsoid, inequilateral, distinctly tuberculate-punctate, 7–9.5 × 5–5.5 μ, dark-rusty-brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: On mosses, in moist coniferous forests, in the north and in the mountains.
DISTRIBUTION: Michigan and Washington; also in Europe.
ILLUSTRATIONS: Ricken, Blätterp. Deutschl. *pl. 37, f. 4.*

35. **Cortinarius orichalceus** Fries, Epicr. Myc. 267. 1838.

Pileus fleshy, convex-expanded, obtuse to flattened, 5–8(–9) cm. broad; surface very viscid, at length spotted on the center by the drying gluten, ecru-olive (R) to olive-ochre (R), the disk laved and spotted by Hays-russet (R), at length entirely Hays-russet (R) except the darker-olivaceous margin; margin involute at first and tomentose-silky; context very thick, white, at length tinted pale-olivaceous, the odor none, the taste slightly disagreeable; lamellae at first adnate, then slightly sinuate, moderately broad, subventricose, crowded, at first dark-olive-buff (R) then darker, Isabella-color (R); stipe stout, 5–6(–8) cm. long, 2–2.5 cm.

thick, rigid, solid and compact inside, equal above the marginate, subdepressed, oblique bulb, at first covered by the obscure, slightly colored remnants of the universal veil, whitish within and without, the bulb larger and subturbinate; spores almond-shaped, tuberculate, 10–12 (–13) × 6–6.5(–7) μ, dark-rusty-brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under coniferous trees, in high mountains, 2400 to 3000 meters.
DISTRIBUTION: Colorado to Idaho, Washington, and Oregon; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 754 (718)*; Grevillea *pl. 113, f. 5; pl. 114, f. 4;* Ricken, Blätterp. Deutschl. *pl. 37, f. 3.*

36. **Cortinarius virentophyllus** C. H. Kauffman, Agar. Mich. 1: 353. 1918.

Pileus fleshy, convex, expanded-plane, regular, 5–8 cm. broad; surface glabrous, viscid, green to olivaceous-yellowish, fading to pale-ochraceous or straw-yellow, sometimes fulvous-tinged, slightly streaked by the drying gluten; context thickish on the disk, very thin on the margin, pallid-greenish, fading, subhygrophanous, with dark-watery-green border along the lamellae, the odor and taste mild; lamellae adnexed-emarginate, thin, close, somewhat narrow, gray-olive or green at first, becoming deep-green, the edge entire; stipe subcespitose, 5–7 cm. long, 10–15 mm. thick, silky-fibrillose, stuffed by fibrous pith then hollow, distinctly cyanous or pale-blue, fading to violaceous-whitish, bluish within then fading, equal above the sub-emarginate bulb, the bulb becoming oval or subobsolete; spores almond-shaped, broadly ellipsoid, distinctly tuberculate, 9–11 × 6–7 μ.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: On the ground, in frondose woods.
DISTRIBUTION: Michigan and Wisconsin.

37. **Cortinarius fulgens** Fries, Epicr. Myc. 267. 1838.

Pileus firm, broadly convex to plane, 6–15 cm. or more broad; surface bright-orange to orange-fulvous, the disk orange-ferruginous, somewhat virgate-streaked, very viscid when moist, the margin incurved at first; lamellae dilute-yellow, then deep-ferruginous-orange, emarginate, broad, close, the edge entire; stipe firm, 4–7 cm. long, 15–25 mm. thick, solid, yellow, covered by the dense rusty-stained fibrils of the cortina, equal or subequal above the large, marginate-depressed bulb; spores almond-shaped, abruptly apiculate, 9–12 × 6–7 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in woods.
DISTRIBUTION: New York.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 716;* Gill. Champ. Fr. *pl. 305 (223).*

38. **Cortinarius fulmineus** Fries, Epicr. Myc. 267. 1838.

Pileus fleshy, convex, then plane, 5–10 cm. broad; surface sulphur-yellow, scarcely changing to darker, sometimes with spot-like scales on the disk, viscid, even, glabrous; context thick on the disk, yellow or yellowish-white, rather soft, the odor and taste mild; lamellae adnate, then emarginate, moderately broad, close, sulphur-yellow at first, finally ochraceous-cinnamon, the edge becoming eroded; stipe short, 3–5 cm. long, 8–18 mm. thick, dry, pale, sulphur-yellow, sometimes merely yellowish-white, yellowish within, sometimes compressed, subfibrillose, then glabrescent and shining, equal above the shallow, marginate-depressed bulb, the bulb yellowish beneath and attached to a yellow mycelium; cortina scanty, whitish; spores almond-shaped, ventricose, slightly rough, 8–10 × 4–5.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in frondose and mixed forests.
DISTRIBUTION: Maine to Michigan; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 717;* C. H. Kauffman, Agar. Mich. *pl. 71;* Ricken, Blätterp. Deutschl. *pl. 38, f. 3.*

39. **Cortinarius elegantior** Fries, Epicr. Myc. 267. 1838.

Agaricus elegantior Fries, Obs. Myc. 2: 64. 1818.

Pileus fleshy, hemispheric, then convex-expanded, 5–12 cm. broad; surface glabrous, viscid, antimony-yellow to light-orange-yellow (R), often mottled by brown spot-like drops,

opaque when dry; margin at first incurved; context compact, whitish-lutescent, the odor and taste mild; lamellae attenuate-adnate, 5–6 mm. broad, broadest in middle, attenuate to ends, crowded, straw-yellow (R) at first, then ochraceous-tawny (R), the edge subentire; stipe firm and rigid, 5–12 cm. long, 15–20 mm. or more thick, equal above the abruptly marginate, non-depressed, subturbinate bulb, solid, white-lutescent, innately fibrillose-silky, covered with the fibrils of the copious white cortina, without any manifest universal veil, compact and white-lutescent within; spores almond-shaped, coarsely tubercular, 12–15(–16) × 8–9 μ, rusty-brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under spruce and fir, in mountain forests.
DISTRIBUTION: Colorado; also in Europe.
ILLUSTRATION: Ricken, Blätterp. Deutschl. *pl. 38, f. 2.*

40. **Cortinarius elegantioides** C. H. Kauffman, Agar. Mich. 1: 344. 1918.

Pileus fleshy, convex, then expanded-plane, 4–7 cm. broad; surface cadmium-yellow, orange-fulvous on the disk, becoming fulvous-ferruginous in age, glabrous, even, with a glutinous separable pellicle; context thick, whitish or tinged greenish-yellow, the taste tardily but definitely bitter, the odor none; lamellae adnate, becoming deeply emarginate and uncinate, close, rather broad, varying in color, pale-yellowish-white, bright-citron-yellow, or sulphur-yellow, at length ferruginous, thin, the edge minutely crenulate; stipe rather stout, 5–8.5 cm. long, 10–18 mm. thick, subequal, dry, spongy-stuffed, yellowish-white or citron-yellow, the flesh greenish-yellow-tinged, with a marginate, subdepressed, subturbinate bulb, the bulb clothed on the surface by the yellow to subferruginous, subgelatinous universal veil; cortina slight, fugacious; spores almond-shaped, ellipsoid, very tuberculate, 15–18 (rarely 19–20) × 7–9 μ.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: On the ground, in frondose woods.
DISTRIBUTION: New York, Michigan, and Missouri.
ILLUSTRATION: C. H. Kauffman, Agar. Mich. *pl. 69.*

41. **Cortinarius citrinellus** C. H. Kauffman, Papers Mich. Acad. 1: 130. 1923.

Pileus fleshy, convex-expanded, up to 10 cm. broad; surface very viscid, then somewhat floccose-dotted from the drying gluten, at first olive-lake (R) to buff-citrine (R), finally clay-colored (R) to honey-yellow (R); margin at first incurved and tomentose; context thick, except on the edge, at first tinged primrose-yellow (R) then whitish, the odor and taste slight; lamellae adnate and rounded behind, then sinuate, moderately broad, 8–10 mm., ventricose, close, in age almost subdistant, at first primrose-yellow (R), finally tawny (R); stipe 5–7(–8) cm. long, the apex 1.5–2 cm. thick, at first marginate-bulbous, becoming oval-bulbous, abruptly and obtusely short-pointed below bulb, the bulb densely fibrillose-tomentose from the primrose-yellow (R) veil, the veil elsewhere evanescent and the surface of the stipe concolorous with pileus; spores broadly ellipsoid to globose, tuberculate, 8–9 × 6–8 μ, brownish under the microscope.

TYPE LOCALITY. Leal, Grand County, Colorado.
HABITAT: Under pine and spruce, in mountain forests.
DISTRIBUTION: Known only from the type locality.

42. **Cortinarius multiformis** Fries, Epicr. Myc. 263. 1838.

Agaricus multiformis Fries, Obs. Myc. 2: 63. 1818.

Pileus fleshy, soon convex then expanded-plane, regular, 5–10 cm. broad; surface canescent-white-hoary when young, viscid, soon ochraceous-buff, becoming pale-ferruginous-orange, with a separable pellicle, at length somewhat dry and subshining, sometimes wrinkled in age from the drying gluten, the margin inrolled; context pallid-white at first, at length somewhat discolored, sublutescent, the odor and taste mild; lamellae attenuate-adnate, then emarginate, close, not broad, at first whitish, then alutaceous-cinnamon, the edge eroded at maturity;

stipe 4–9 cm. long, 10–20 mm. thick, spongy-solid, subfibrillose, white at first, then alutaceous, equal above the marginate or sometimes scarcely marginate bulb, the bulb at length becoming oval; cortina white, scanty, fugacious; spores subfusiform-ellipsoid, scarcely at all rough, 7–9 × 4–5.5 μ, pale, not becoming rusty.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in humus, in coniferous forests.
DISTRIBUTION: New England to Minnesota; Colorado; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 708, 709 (701–702)*; Grevillea *pl. 104, f. 4;* Ricken, Blätterp. Deutschl. *pl. 39, f. 1;* C. H. Kauffman, Agar. Mich. *pl. 72.*

43. **Cortinarius rubens** C. H. Kauffman, Agar. Mich, 1: 343. 1918.

Pileus fleshy, hemispheric, then convex-expanded, 3–7 cm. broad; surface vermilion-red to orange-fulvous, unicolorous, with a viscid, separable, toughish pellicle, glabrous, even, shining when dry; context thick, whitish, the odor faintly aromatic, the taste bitterish then disagreeable; lamellae adnexed, becoming emarginate, rather close, cesious or pale-drab at first, then argillaceous-cinnamon, the edge entire and tinged dull-citron-yellowish; stipe 4–7 cm. long, 1–1.5 cm. thick, solid, dry, pale-straw-yellow to whitish, citron-yellowish within, fimbriate from the cortina, equal above the rounded, marginate-depressed bulb, the bulb clothed by the vermilion-red universal veil except below, there white and attached to white mycelium; cortina white or tinged with red; spores almond-shaped, very inequilateral, tuberculate, 15–18 × 7–8.5 μ.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: On the ground, in frondose woods.
DISTRIBUTION: Michigan and Wisconsin.

44. **Cortinarius corrugatus** Peck, Ann. Rep. N. Y. State Mus. **24**: 72. 1872.

Pileus fleshy, broadly campanulate, obtuse, 5–10 cm. broad; surface viscid when moist, coarsely and radiately corrugate or reticulate, tawny or yellowish-ferruginous, varying to yellow or ochraceous; context white, thin on the margin, the odor rather pleasant, the taste mild; lamellae adnate, rather broad, close, transversely striate, pallid or obscurely purplish-tinged at first, soon ferruginous-cinnamon, the edge eroded at length; stipe long-cylindric, 7–12 cm. long, 6–16 mm. thick, often fibrillose, spongy-stuffed, often hollowed by grubs, scurfy at apex, yellowish or tawny-yellowish, with a rather small, rounded-oval bulb clothed when fresh by the thin, tawny, adnate, and viscid remains of a universal veil, pallid or concolorous within; cortina almost lacking, evanescent; spores broadly ellipsoid, very rough-tuberculate, variable in size, 10–15 × 7–10 μ (usually 12–13 × 8–9 μ).

TYPE LOCALITY: Highlands, New York.
HABITAT: On the ground, among underbrush, in mixed and coniferous forests.
DISTRIBUTION: New England to New Jersey and Canada, and westward to Michigan.
ILLUSTRATIONS: Mem. N. Y. State Mus. **4**: *pl. 58, f. 8–15;* Bull. Conn. Geol. Nat. Hist. Surv. 15: *pl. 21.*

45. **Cortinarius olivaceo-stramineus** C. H. Kauffman, Bull. Torrey Club **32**: 322. 1905.

Pileus fleshy, broadly convex, slightly depressed in the center when expanded, 4–7 cm. broad; surface pale-straw-yellow with an olivaceous-tinge, slightly rufous-tinged in age, glabrous or silky-fibrillose, the disk sometimes covered with minute scales, viscid from a gelatinous pellicle, the margin incurved at first, with shreds of the cortina attached to it on expanding; context very thick on the disk, abruptly thin on the margin, white, dingy-yellowish in age, soon soft and spongy, the odor and taste mild; lamellae sinuate-adnexed, rather narrow, crowded, whitish at first, then pale-cinnamon, the edge serratulate and paler; stipe 6–8 cm. long, 5–18 mm. thick, spongy and soft within, sometimes becoming hollow, white and pruinate above the fibrillose remains of the cortina, with a slight, subobsolete, submarginate bulb,

the copious white cortina arising from its margin; spores ventricose-ellipsoid, with stout apiculus, almost smooth, granular within, 10–12 × 5.5–6.5 μ.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On the ground, in frondose and mixed woods.
DISTRIBUTION: New York and Michigan.
ILLUSTRATIONS: Bull. Torrey Club **32**: 309, *f. 3;* Jour. Myc. **13**: *pl. 95.*

46. **Cortinarius intrusus** Peck, Bull. Torrey Club **23**: 416. 1896.

Pileus fleshy, convex-expanded, soon plane and subdepressed, 2.5–6 cm. broad; surface glabrous, whitish to dull-clay-colored, sometimes tinged tawny-ochraceous or reddish, viscid when moist, even or radiately wrinkled; context whitish, thin, the odor and taste slightly those of radish; lamellae rounded behind, adnexed or almost free, thin, close, not broad, whitish at the very first, soon creamy-yellowish to tawny-ochraceous, finally umber-brown, the edge subcrenulate and provided with capitate, sterile cells as in *Galera;* stipe 3–6 cm. long, 4–10 mm. thick, stuffed to hollow, whitish, at length stained by the spores, even or striate above, minutely floccose at first, glabrescent, equal or tapering, more or less abruptly bulbous; spores ellipsoid-ovoid, smooth, 6–7.5 × 4–5 μ, brownish-cinnamon in mass.

TYPE LOCALITY: Haddonfield, New Jersey.
HABITAT: Among cultivated plants, on the soil of greenhouses, mushroom-beds, flower gardens, plant-pots and similar substrata.
DISTRIBUTION: New England to New Jersey and Michigan.
ILLUSTRATION: C. H. Kauffman, Agar. Mich. *pl. 73.*

47. **Cortinarius sublateritius** Peck, Ann. Rep. N. Y. State Mus. **54**: 151. 1901.

Pileus fleshy, broadly convex or nearly plane, 5–7.5 cm. broad; surface glabrous, viscid, light-red, the margin incurved; context white; lamellae adnexed, emarginate, close, thin, plane, pallid at first, becoming cinnamon; stipe short, 3–6 cm. long, 6–10 mm. thick, equal or slightly tapering upward, stuffed, silky, whitish, abruptly bulbous; spores ventricose-ellipsoid, abruptly short-pointed at each end, rough-tuberculate, 10–12.5 × 5–6.5 μ.

TYPE LOCALITY: Westport, New York.
HABITAT: On the ground, in woods.
DISTRIBUTION: Known only from the type locality.

48. **Cortinarius aleuriosmus** Maire, Bull. Soc. Myc. Fr. **26**: 180. 1910.

Pileus fleshy, very compact, firm, broadly convex, 5–10 cm. broad; surface alutaceous-whitish at first, soon dingy-ochraceous-tan to russet-tan, sometimes sordid-tawny-yellowish in age, glabrous, with a glutinous pellicle when moist or young, becoming reticulate-rivulose from the drying gluten, the margin inrolled at first; context thick, white or with an evanescent violaceous tinge, the odor and taste mild; lamellae adnexed, narrow, crowded, pale-livid-grayish at first, sometimes pallid, then rusty-cinnamon, the edge erose-serratulate; stipe stout, short, 4–6 cm. long, 10–20 mm. thick, solid, compact, white or scarcely violaceous-tinged, fibrillose from the cortina, with a thick, turbinate, marginate bulb, the bulb not depressed, white below and arising from white mycelium; spores ellipsoid-almond-shaped, minutely tuberculate, 10–12 × 5–6 μ.

TYPE LOCALITY: France.
HABITAT: On the ground, in frondose woods.
DISTRIBUTION: New York and Michigan.
ILLUSTRATIONS: Bull. Soc. Myc. Fr. **26**: *pl. 7, f. 4–5;* Ricken, Blätterp. Deutschl. *pl. 39, f. 4.*

49. **Cortinarius albidus** Peck, Ann. Rep. N. Y. State Mus. **44**: 132. 1891.

Pileus fleshy, convex, then expanded, 5–10 cm. broad; surface white or whitish, even, glabrous, with a separable, viscid pellicle, shining when dry; context thick, white, the odor and taste mild; lamellae adnexed-emarginate, moderately broad, close, thin, white at first, then

pale-alutaceous to cinnamon, the edge even; stipe 5–8 cm. long, 8–16 mm. thick, solid, white, fibrillose from the cortina, with an oblique, marginate-depressed bulb attached to white mycelium; cortina white, copious; spores ellipsoid, scarcely rough, 9–11 × 5–6.5 μ.

TYPE LOCALITY: Carrollton, New York.
HABITAT: On the ground, in low frondose woods.
DISTRIBUTION: New England to New Jersey and Michigan.
ILLUSTRATION: Ann. Rep. N. Y. State Mus. **44**: *pl. 3, f. 1–4.*

50. **Cortinarius triumphans** Fries, Epicr. Myc. 256. 1838.

Cortinarius crocolitus Quel. Bull. Soc. Bot. Fr. **25**: 288. 1879.

Pileus fleshy, convex-plane, obtuse, 5–10 cm. broad; surface viscid, spotted with superficial patches of the veil, or glabrous and appressed-subtomentose on drying, especially on the disk, even, apricot-yellow to ochraceous-orange (R), finally becoming tawny; context soft, white, thick on the disk, the odor and taste slightly of coal-tar or radish; lamellae at first adnate-subdecurrent, then sinuate to emarginate, close, moderately broad, at first cesious-whitish, then ochraceous-buff to argillaceous, the edge entire; stipe thick above, 8–12 cm. long, 1–2 cm. thick, clavate-bulbous or rounded-bulbous, solid, at first sheathed by a whitish universal veil, this at length broken into yellowish-ochraceous annular patches terminating above the ring; spores almond-shaped, tuberculate, 12–15 × 6–7.5 μ, rusty-yellow.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in coniferous forests.
DISTRIBUTION: New York; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 141, f. 1;* Gill. Champ. Fr. *pl. 313 (252)*; Cooke, Brit. Fungi *pl. 692 (682)*; Ricken, Blätterp. Deutschl. *pl. 41, f. 2.*

51. **Cortinarius maculipes** Peck, Ann. Rep. N. Y. State Mus. **54**: 150. 1901.

Pileus fleshy, convex, becoming nearly plane, 3–6 cm. broad; surface glabrous, but covered with a tenacious gluten, bay-red, becoming paler with age; context whitish; lamellae thin, close, rounded behind, slightly adnexed, whitish at first, becoming brownish-cinnamon; stipe equal or slightly tapering upward, 5–7.5 cm. long, 6–12 mm. thick, subradicating, solid or stuffed, silky-fibrillose, scaly-spotted, sometimes slightly annulate; spores ellipsoid, scarcely rough, 7.5–9 × 5–6 μ.

TYPE LOCALITY: Westport, New York.
HABITAT: On the ground, in woods.
DISTRIBUTION: Known only from the type locality.

52. **Cortinarius sphagnophilus** Peck, Ann. Rep. N. Y. State Mus. **29**: 42. 1878.

Pileus fleshy, convex to expanded, 5–7.5 cm. broad; surface glabrous, viscid, pale-brown, marked with dark watery spots especially on the margin; lamellae moderately broad, subdistant, transversely rugulose, at first violaceous then cinnamon; stipe 10–15 cm. long, silky, striate, violaceous-white, then cinnamon, with an oval bulb at base; spores oblong-ellipsoid, slightly rough, 10–11.5 (rarely 12.5) μ × 5.5–6 μ.

TYPE LOCALITY: Greig, New York.
HABITAT: In sphagnum marshes.
DISTRIBUTION: Known only from type locality.

53. **Cortinarius copakensis** Peck, Ann. Rep. State Mus. **31**: 35. 1879.

Pileus fleshy, convex, then expanded, often crowded and irregular, 3–7.5 cm. broad; surface viscid, corrugated, pale-ochre, slightly red-tinged; lamellae broad behind, subdistant, violaceous at first, the interspaces veiny, the edge eroded; stipe subcespitose, rather slender,

5–7 cm. long, 4–8 mm. thick, equal or tapering upwards, stuffed, silky, whitish; spores broadly ellipsoid to subglobose, rough-punctate, 7–9.5 × 7 μ.

TYPE LOCALITY: Albany, New York.
HABITAT: On the ground, in woods.
DISTRIBUTION: New York.

54. **Cortinarius lapidophilus** Peck, Ann. Rep. N. Y. State Mus. 31: 36. 1879.

Pileus fleshy, hemispheric, then convex-expanded, 5–7.5 cm. broad; surface at first cinereous, becoming ochre-tinged, often crowded and irregular, virgate with appressed fibrils; context whitish; lamellae crowded, dark-violaceous at first, then argillaceous-cinnamon; stipe 5–10 cm. long, 6–10 mm. thick, solid, equal or slightly thickened at base, whitish; spores broadly ellipsoid-ovoid to subglobose, rough-punctate, 7–8 × 6 μ.

TYPE LOCALITY: Ticonderoga, New York.
HABITAT: On rocky soil, in woods.
DISTRIBUTION: Known only from the type locality.

55. **Cortinarius albidipes** Peck, Bull. N. Y. State Mus. 157: 57. 1912.

Pileus fleshy, compact, hemispheric, then broadly convex, obtuse or subumbonate, 5–10 cm. broad; surface viscid, glabrous and shining when dry, buff-colored; context white, the taste mild; lamellae moderately close, pale-violaceous at first, cinnamon when mature, 4–6 mm. broad; stipe thick above, clavate-bulbous and tapering upward, 5–8 cm. long, 10–15 mm. thick at apex, firm, solid, silky-fibrillose, white; spores subglobose, 8–10 × 7–9 μ.

TYPE LOCALITY: Constableville, New York.
HABITAT: Among fallen leaves, in woods.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATION: Bull. N. Y. State Mus. 157: *pl. 128, f. 1–6.*

56. **Cortinarius lanatipes** Peck, Ann. Rep. N. Y. State Mus. 42: 116. 1889.

Pileus fleshy, broadly convex or nearly plane, 2.5–7.5 cm. broad; surface viscid, grayish, often tinged with yellow, becoming yellowish or subfulvous and virgate with innate tawny fibrils when old; context whitish; lamellae adnexed, narrow, close, pale-violaceous at first; stipe short, 3–5 cm. long, 6–10 mm. thick, equal or tapering upward above the oval bulb, solid, subannulate, silky above the annulus, loosely fibrillose-tomentose below, white; cortina white; spores ellipsoid, 7–8.5 × 4–5 μ.

TYPE LOCALITY: North Elba, Adirondack Mountains, New York.
HABITAT: On the ground, in coniferous woods.
DISTRIBUTION: New York.

57. **Cortinarius largus** Fries, Epicr. Myc. 259. 1838.

Pileus fleshy, firm, convex-expanded, very obtuse, 5–10(–15) cm. broad; surface viscid or subviscid, at first varying from deep-lavender (R) to ecru-drab (R), soon changed to old gold (R), wood-brown (R) or tawny-olive (R), sometimes with margin violaceous-tinged at maturity, glabrous, appressed-silky and sometimes rivulose-wrinkled on the margin, this at first deep-lavender (R) soon fading to whitish; context rather compact, thick on the disk, abruptly thin on the margin, the odor and taste slight; lamellae adnate, then emarginate or adnexed-sinuate, moderately broad, narrowed at ends, close to crowded, at very first deep-lavender (R), usually as seen merely violet-gray (R), finally cinnamon (R), the edge entire; stipe rather stout, 5–10 cm. long, 7–12 mm. thick at the apex, tapering at first from a bulbous base, at length equal above the clavate or ovoid base, terete, stuffed by firm pith, then hollow (in American form), appressed-fibrillose from the cortina, glabrescent, the apex pruinose, sometimes minutely lacerate-subscaly, at very first deep-lavender (R), but quickly fading to whitish, concolorous within, the base of the stem whitish, and straw-yellow when bruised,

the bulb 10–20 mm. thick; spores ellipsoid, somewhat almond-shaped, tuberculate-dotted, 9–11(–12) × 5–6 μ, dark-rusty-brown.

TYPE LOCALITY: Sweden.
HABITAT: In mixed woods.
DISTRIBUTION: In the Appalachian Mountains, Virginia to Georgia.
ILLUSTRATION: Cooke, Brit. Fungi *pl. 701* (*693*).

58. **Cortinarius cyanopus** Fries, Epicr. Myc. 258. 1838.

Pileus fleshy, at first hemispheric and not embracing the bulb, then broadly convex-expanded, obtuse, 5–7 cm. broad; surface glabrous, even, viscid in wet weather, soon dry, clay-colored (R), opaque; context whitish, rather soft, thick except the margin, the odor and taste mild; lamellae adnate, then emarginate, 5–7 mm. or more broad, close, deep-vinaceous-lavender (R), soon pale-cinnamon, the edge markedly crenulate-uneven; stipe firm, equal or tapering upward from the definite bulb, solid, naked at the apex, innately silky, the lower part and bulb white, the upper part vinaceous-lavender within and without, the bulb either rounded or slightly margined above; cortina rather scanty; spores broadly ellipsoid, coarsely tuberculate, 10–12 × 8–9 μ, dark-brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under coniferous trees, in mountain forests, 2700 meters elevation.
DISTRIBUTION: Colorado; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 699* (*690*); Grevillea *pl. 102, f. 2*.

59. **Cortinarius varius** Fries, Epicr. Myc. 258. 1838.

Agaricus varius Fries, Syst. Myc. 1: 225. 1821.

Pileus fleshy, convex-expanded, very obtuse, regular, 4–8 cm. broad; surface viscid, glabrous, even, unicolorous, yellow-ochre (R) to tawny (R); margin at first incurved; context firm, white, or whitish, the odor and taste mild; lamellae adnate, then emarginate, close to crowded, at first rather narrow and vinaceous-lilac (R), at length broader and cinnamon, losing the lilac color slowly, the edges entire; stipe equal or clavate-bulbous, 5–7 cm. long, about 10 mm. thick at the apex, up to 20 mm. or more at the base, dry, stuffed, at length hollow, white or at first with violaceous tint at the apex, fibrillose, sometimes marked near the apex by an annular zone from the copious cortina; spores broadly ellipsoid, maturing slowly, tuberculate, 9–12 × 6–6.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: Under Douglas fir and hemlock.
DISTRIBUTION: Olympic Mountains, Washington; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 698* (*689*).

60. **Cortinarius claricolor** Fries, Epicr. Myc. 257. 1838.

Agaricus claricolor Fries, Obs. Myc. 2: 65. 1818.

Pileus fleshy, firm, obtusely convex, at length broadly convex to plane, subdiscoid, 5–10 cm. broad; surface glutinous when moist, shining when dry, even, glabrous, raw-sienna to orange-buff (R), unicolorous, not virgate, the margin incurved and cortinate; context compact, white, thick on the disk, the odor and taste mild; lamellae emarginate-adnexed, rather narrow, close, at first cesious to pale-brownish-drab (R), finally clay-colored, the edge erose-serrate; stipe 12–15 mm. thick above, white, firm, solid, fibrillose or floccose-fibrillose, 5–8 cm. long, round-bulbous to clavate-bulbous, the bulb up to 2 cm. thick; spores almond-shaped, punctate-rough, 8–10 × 5–6 μ, pale-rusty-ochraceous.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, among conifers.
DISTRIBUTION: New York; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 142, f. 2;* Gill. Champ. Fr. *pl. 205;* Cooke, Brit. Fungi *pl. 693* (*683*); Ricken, Blätterp. Deutschl. *pl. 41, f. 1;* Grevillea *pl. 102, f. 1*.

61. **Cortinarius substriatus** C. H. Kauffman, sp. nov.

Pileus subfleshy, broadly conic-campanulate, 3–7 cm. broad; surface viscid, glabrous, at first Natal-brown (R), becoming Mikado-brown (R) with a slight purplish tint, fading, striate

at times on the thin margin; lamellae adnate, rounded behind, moderately broad, ventricose, close to crowded, not reaching the margin of pileus, at first tinged violaceous-purplish, at length cinnamon; stipe elongate, tapering from the base to the apex, 8–12 cm. long, 6–8 mm. thick above, twice as thick at the base, dry, stuffed, at first clothed by a very thin, white, evanescent sheath, then subfibrillose, at first distinctly violaceous-purple at the apex, soon fading to pallid, rather slender; spores narrowly ellipsoid, smooth, 9–10 × 5–6 μ, pale-ochraceous under the microscope. (See page 348.)

Type collected on moss, under Douglas fir and hemlock, at Lake Cushman, Olympic Mountains, Washington, October 20, 1915, *C. H. Kauffman* (herb. Univ. Mich.).

62. **Cortinarius decoloratus** Fries, Epicr. Myc. 270. 1838.

Agaricus decoloratus Fries, Syst. Myc. 1: 224. 1821.

Pileus fleshy, convex, then expanded, 3–7 cm. broad; surface buff or pallid-clay-colored, regular, viscid, slightly corrugate when dry; context thin, watery, soft, white; lamellae adnate, sometimes subdecurrent, sinuate, close, moderately broad, cesious or pallid-gray at first, then pale-cinnamon; stipe equal or tapering upward, 5–7 cm. long, 3–8 mm. thick, stuffed, then hollow, whitish, sometimes striate above, obscurely spotted with ochraceous shreds of the veil; spores subglobose to ovoid, almost smooth, 8–9 × 6–7.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in frondose and mixed woods.
DISTRIBUTION: New England to Wisconsin; Colorado; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 729* (*726*); Grevillea *pl. 107, f. 4.*

63. **Cortinarius porphyropus** (Alb. & Schw.) Fries, Epicr. Myc. 271. 1838.

Agaricus porphyropus Alb. & Schw. Consp. Fung. 153. 1805.
Cortinarius porphyropus Ricken, Blätterp. Deutschl. 130. 1912.

Pileus fleshy, convex, then expanded-plane, obtuse, 3–5(–6) cm. broad; surface viscid, soon dry, even, innately virgate, at first clay-tinged, then buffy-brown (R); margin at first inrolled, thin; context rather thin, soft, whitish but changing to blackish-purple (R) when cut or bruised, the odor none, the taste slight; lamellae adnexed, then emarginate or subdecurrent by a tooth, close, moderately broad, vinaceous-purple (R) at first, at length army-brown (R) or darker, changing quickly to blackish-purple (R) when bruised, the edge entire; stipe varying, equal or tapering upward, 4–7(–8) cm. long, 5–10 mm. thick, fragile, spongy-stuffed, subglabrous or fibrillose, becoming sub-hollow, the cortex fibrous and at length toughish, at first vinaceous-purple (R) soon fading to pallid, but quickly blackish-purple when bruised; spores ellipsoid-oblong, smooth, 9–12(–13) × 5–6 μ, pale-brown under the microscope.

TYPE LOCALITY: Lusatia, Germany.
HABITAT: Under birch, etc., in moist places.
DISTRIBUTION: New England and New York, also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 731* (*728*).

64. **Cortinarius infractus** Fries, Epicr. Myc. 261. 1838.

Cortinarius anfractus Fries, Epicr. Myc. 262. 1838.
Agaricus infractus Fries, Syst. Myc. 1: 223. 1821.

Pileus fleshy, convex, then expanded, 5–10 cm. broad; surface viscid, glabrous, even, dark-olive or sooty-olive, then fulvous-tinged, the margin broadly incurved, then spreading and often with a broad zone; context whitish or slightly violaceous-tinged, firm, thick, except on the margin, the taste of the pellicle bitter, the odor slight; lamellae narrowed-adnate, sometimes emarginate or spuriously subdecurrent, crowded to almost subdistant, rather narrow, sometimes broader, dark-olive or sooty-olive, at length umber, the edge crenulate-eroded; stipe 5–9 cm. long, 8–15 mm. thick, solid, clavate or with oval bulb, fibrillose, dull-violaceous above, dingy-whitish to olivaceous below; spores subglobose to ovoid, rough-punctate, 7–8 × 5–6.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in frondose and mixed woods.
DISTRIBUTION: New England to Missouri, and southward to Tennessee; Oregon and Washington; also in Europe.

65. **Cortinarius olivaceus** Peck, Ann. Rep. N. Y. State Mus. **24**: 72. 1872.

Pileus fleshy, convex, then expanded, 3–5 cm. broad; surface glabrous, viscid, dark-brown with a greenish or olivaceous tinge; context grayish; lamellae close, rather broad, at length ventricose, dark-olivaceous at first, then cinnamon; stipe 6–8 cm. long, 6–10 mm. thick, equal, stuffed to hollow, white-violaceous, thickened below, with an oval bulb; spores ellipsoid, very rough, tuberculate, 10–12.5 × 6–7.5 μ.

TYPE LOCALITY: Greig, New York.
HABITAT: On the ground, in woods.
DISTRIBUTION: Known only from the type locality.

66. **Cortinarius glutinosus** Peck, Ann. Rep. N. Y. State Mus. **43**: 64. 1890.

Pileus fleshy, convex, 2.5–7 cm. broad; surface glutinous, brownish-ochraceous, the margin narrowly involute; context yellowish; lamellae adnexed, rather broad, olivaceous; stipe 3–7 cm. long, 6–10 mm. thick, solid, whitish, or pallid, thickened at the base, scarcely bulbous; spores broadly ellipsoid to subglobose, minutely rough, 7–8 × 5.5–6.5 μ.

TYPE LOCALITY: Adirondack Mountains, New York.
HABITAT: On the ground, in coniferous forests.
DISTRIBUTION: New York.

67. **Cortinarius longipes** Peck, Ann. Rep. N. Y. State Mus. **26**: 61. 1874.

Pileus fleshy, convex to expanded, 5–8 cm. broad; surface slightly fibrillose, viscid, yellowish or pale-ochraceous; lamellae close, plane, brownish-olivaceous at first, then cinnamon; stipe elongate, tapering upward, 10–15 cm. long, 6–8 mm. thick, slightly fibrillose, whitish; spores broadly ellipsoid to subglobose, slightly rough, 6–7.5 × 5–6 μ.

TYPE LOCALITY: Croghan, New York.
HABITAT: On the ground, in woods.
DISTRIBUTION: Known only from the type locality.

68. **Cortinarius ophiopus** Peck, Ann. Rep. N. Y. State Mus. **30**: 43. 1878.

Pileus fleshy, convex or subcampanulate, then expanded, sometimes irregular, 5–10 cm. broad; surface viscid, glabrous, reddish-yellow, the paler margin sometimes roughened by adhering patches of the whitish veil; context white; lamellae close, rather broad, brownish-cinnamon, the edge often eroded; stipe 10–15 cm. long, 8–12 mm. thick, equal, long and usually much bent or variously curved, at first shaggy-scaly from the subconcentrically arranged fragments of the copious veil, white or yellowish; spores ellipsoid, inequilateral, 11–12 × 6–7 μ.

TYPE LOCALITY: Maryland, New York.
HABITAT: On the ground, in woods.
DISTRIBUTION: Known only from the type locality.

69. **Cortinarius corruscans** Fries, Epicr. Myc. 271. 1838.

Agaricus corruscans Fries, Syst. Myc. 1: 227. 1821.

Pileus fleshy, soon expanded, regular, obtuse or at length depressed, 5–10 cm. broad; surface viscid, glabrous, even or radiately reticulate under lens from the drying viscidity, irregularly radiate-rimulose on drying, orange-cinnamon (R), the disk pinkish-cinnamon (R) and sometimes hoary, split on the margin; context thick on disk, abruptly thin on margin, white, unchanging, rather firm, the odor and taste none; lamellae adnate-decurrent, markedly narrow, linear, thin, close to crowded, pale-ochraceous, then clay-colored (R), the edge entire; stipe 7–12 cm. long, 7–10(–12) mm. thick, equal or slightly thicker toward base, solid, the apex dilated and more or less striate, fibrillose-glabrescent, the apex subscaly, white within and

without, unchanging; spores minute, narrowly ellipsoid, smooth, 6–7 × 4 μ, alutaceous, *i.e.*, *Hebeloma*-like under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: In woods, mixed with *Magnolia* and *Rhododendron*.
DISTRIBUTION: Tennessee; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 733 (730)*.

70. **Cortinarius virgatus** Peck, Bull. Torrey Club **22**: 203. 1895.

Pileus fleshy, hemispheric or convex, obtuse or subumbonate, 8–10 cm. broad; surface scarcely viscid, olivaceous-ochraceous, conspicuously virgate with red fibrils; context thick, dingy-white; lamellae adnexed, subdistant, at first subcinnamon, then ochraceous-red to brown; stipe short, 5–6 cm. long, 15–35 mm. thick, firm, solid, dilated and fibrillose at base, pallid-ochraceous; spores subglobose to broadly ellipsoid, 6–8 × 5–6 μ.

TYPE LOCALITY: Pasadena, California.
HABITAT: On the ground, under oaks.
DISTRIBUTION: Known only from the type locality.

71. **Cortinarius immixtus** C. H. Kauffman, sp. nov.

Pileus fleshy, campanulate-convex, then expanded-plane, obtuse, 5–7 cm. broad; surface glutinous, glabrous, at length somewhat wrinkled by the drying gluten, at first citrine (R) becoming Prout-brown (R) on center, ochraceous-tawny (R) on margin, the margin at first incurved, and white-cortinate; context thick on disk, abruptly thin on margin, whitish, the odor and taste mild; lamellae adnate, then sinuate, close to crowded, moderately broad, 6–8 mm., thin, at first sulphine-yellow (R), finally cinnamon-brown (R), the edge entire; stipe 7–10 cm. long, 7–12 mm. thick, subequal or slightly tapering upward, stuffed, soon hollow at the apex, at first tinged with the same color as the pileus, then white within and without, the apex glabrous and shining, fibrillose elsewhere; spores ventricose-subellipsoid, subacute at ends, somewhat almond-shaped, smooth, 8–10 × 4.5–5.5 μ, rusty-brown under the microscope.

(See page 348.)

Type collected on deep mosses, under Douglas fir and hemlock, at Lake Cushman, Olympic Mountains, Washington, October 20, 1915, *C. H. Kauffman* (herb. Univ. Mich.).

72. **Cortinarius percomis** Fries, Epicr. Myc. 260. 1838.

Pileus fleshy, broadly convex, obtuse, 5–7(–8) cm. broad; surface glabrous, even, viscid, chamois (R) when young, then primrose-yellow (R), honey-yellow (R) in age, slightly paler on the margin; context firm, thick on the disk, abruptly thin at the margin, primrose-yellow (R), the odor distinct, penetrating, sweet-aromatic, the taste slight or somewhat disagreeable; lamellae acuminate-adnate, crowded, narrow, sometimes thick and crisped, at first colonial-buff (R) or sulphur-yellow (R), the edge entire; stipe cespitose to subcespitose, 4–8 cm. long, 12–15 mm. thick at apex, at first clavate-bulbous to rounded-bulbous, then sometimes elongate or subventricose, firm, solid, compact, yellowish-white, at first covered by the sulphur-yellow (R) to primrose-yellow (R), thin, universal veil, concolorous within, silky-fibrillose from the whitish cortina, the bulb never marginate; spores almond-shaped, tuberculate, 10–12(–13) × 6–7 μ, rusty-yellow under the microscope, the exospore hyaline.

TYPE LOCALITY: Sweden.
HABITAT: Under spruce, fir, hemlock, etc., in mountain forests.
DISTRIBUTION: Colorado and Washington; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 143, f. 2;* Grevillea *pl. 104, f. 3*.

73. **Cortinarius coloratus** Peck, Ann. Rep. N. Y. State Cab. **23**: 105. 1872.

Pileus fleshy, convex, then broadly campanulate and discoid, 5–10 cm. broad; surface bright-reddish-yellow to tawny-orange and shining, becoming dull-testaceous, glabrous, even, sometimes radially cracked on drying, with a viscid pellicle, the margin at first incurved; context whitish, thick except the margin, firm, compact, the odor and taste slight; lamellae adnate at first, becoming emarginate, rather broad, close, rigid becoming crisped on drying, thin,

whitish or pallid at first, then pale-clay-colored to cinnamon-brown, not reaching the margin of the pileus, the edge paler; stipe clavate-bulbous, 5–12 cm. long, 8–12 mm. thick above, 20–30 mm. thick at bulb, solid, firm, at first white and silky-fibrillose from the cortina, white within, slightly lutescent, marked at times by the thin remains of an evanescent, yellowish-tawny universal veil, attached at the base to delicate white mycelial strands; cortina white, cobwebby, not very copious; spores almond-shaped, ellipsoid, distinctly rough, 9–11 × 6–7 μ.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On the ground, in frondose and coniferous woods.
DISTRIBUTION: New York and Michigan.
ILLUSTRATION: C. H. Kauffman, Agar. Mich. *pl. 74.*

74. **Cortinarius saginus** Fries, Epicr. Myc. 260. 1838.

Agaricus saginus Fries, Syst. Myc. 1: 226. 1821.

Pileus fleshy, broadly convex-expanded to plane, 9–14 cm. broad; surface viscid, olive-ocher (R) to yellow-ocher (R), becoming honey-yellow (R) to tawny-ocher (R), the disk darker, slightly rusty-streaked, glabrous, even; context whitish, lutescent, the odor and taste mild; lamellae rounded behind, then subdecurrent, broad, 10–12 mm. or more, crowded, pallid but sordid, soon lutescent, ocher-yellow to cinnamon; stipe at first rounded-bulbous, then very elongate, stout, 9–13 cm. long, 10–12 mm. thick, the base thicker, finally subequal above the disappearing bulb, stuffed, dingy-pallid, soon markedly lutescent, streaked with fibrils of copious cortina which is superior, the bulb rarely subemarginate; spores almond-shaped, inequilateral, rough-punctate, 9–11(–12) × 5.5–6.5(–7) μ, ochraceous-rusty under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: In mountain forests, under conifers.
DISTRIBUTION: Washington; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 703 (695)*; Grevillea *pl. 92.*

75. **Cortinarius balteatus** Fries, Epicr. Myc. 257. 1838.

Agaricus balteatus Fries, Obs. Myc. 2: 138. 1818.

Pileus fleshy, convex-expanded, obtuse, sometimes discoid or somewhat broadly gibbous, 7–10 cm. broad; surface with an adnate cuticle at first viscid, soon dry and shining, then breaking up on the disk in an areolate manner, Kaiser-brown (R) to snuff-brown (R), at first yellow-ocher (R) toward the margin, then clay-colored (R); margin at first incurved and whitish-cortinate (not violaceous in this form); context very thick, compact, white, unchanging, the odor and taste mild; lamellae adnate, then emarginate, close, 9–14 mm. broad, broader in front, thin, whitish at first then ochraceous-buff (R) to clay-colored (R), the edge entire; stipe stout, short, 4–6 cm. long, rarely longer, 1.5–2.5 cm. thick, solid, compact, subequal to oval-bulbous, the apex naked, elsewhere obscurely reticulate or longitudinally striate, at first subcortinate from the white cortina, whitish within and without, not lutescent; spores almond-shaped, tuberculate, 10–12 × 5–6 μ, brownish.

TYPE LOCALITY: Sweden.
HABITAT: Under pine, in the mountains.
DISTRIBUTION: New York and Colorado; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 142, f. 2;* Cooke, Brit. Fungi *pl. 696 (686);* Gill. Champ. Fr. *314 (198).*

76. **Cortinarius phyllophilus** Peck, Bull. N. Y. State Mus. 157: 28. 1912.

Pileus fleshy, convex or nearly plane, 7–12 cm. broad; surface viscid, somewhat shining and slightly innately fibrillose when dry, pale-tawny-ochraceous; context thick, compact, white, the taste mild; lamellae thin, close, yellow at first, becoming brownish-cinnamon, the edge eroded; stipe short, stout, 3–5 cm. long, 1–1.5 cm. thick, firm, abruptly bulbous, silky-fibrillose, whitish with ferruginous stains at the base; spores ellipsoid, pointed at the ends, 10–12 × 5–6 μ.

TYPE LOCALITY: Humphrey Gorge, Lewis County, New York.
HABITAT: Among fallen leaves, in woods.
DISTRIBUTION: Known only from the type locality.

77. **Cortinarius luteo-fuscus** Peck, Ann. Rep. N. Y. State Cab. **23**: 106. 1872.

Pileus fleshy, broadly convex, 5–6 cm. broad; surface even, glabrous, viscid, pale-fuscous to smoky-brown; lamellae deeply emarginate, rather broad, rather close, yellow at first, at length cinnamon; stipe 9–10 cm. long, 6–8 mm. thick, equal above, with a rounded-oval bulb below, solid, silky-striate, whitish; spores broadly ellipsoid, obtuse, somewhat rough, 12–13 × 6–7.5 μ.

TYPE LOCALITY: North Elba, Adirondack Mountains, New York.
HABITAT: On the ground, in woods.
DISTRIBUTION: Known only from the type locality.

78. **Cortinarius communis** Peck, Ann. Rep. N. Y. State Cab. **23**: 106. 1872.

Pileus fleshy, convex-expanded, obtuse, 2–6 cm. broad; surface whitish with a gray tinge at first, becoming yellowish or brown in age, subviscid, sometimes reddish, glabrous, the margin decorated at first by white fibrils of the cortina; context slightly bitterish; lamellae emarginate, at length subdecurrent by a tooth, moderately broad, close, white to pallid at first, then pale-ochraceous-cinnamon; stipe 4–6 cm. long, 4–6 mm. thick, stuffed to hollow, equal or nearly so, curved at base, mealy at the apex, subfibrillose, white then yellowish-stained; cortina white; spores ventricose-ellipsoid, smooth, 9–10.5 × 5–6 μ.

TYPE LOCALITY: Center, New York.
HABITAT: On the ground, in open woods.
DISTRIBUTION: New York and Michigan.

79. **Cortinarius violaceus** (L.) Fries, Epicr. Myc. 279. 1838.

Agaricus violaceus L. Sp. Pl. 1173. 1753.

Pileus fleshy, convex, obtuse, subexpanded, 5–12 cm. broad; surface dry, dark-violet-indigo-tinged, covered with villose, minute, suberect tufts or scales, at length metallic-shining; context rather thick, varying gray to dark-violet, not becoming purple when bruised, the odor and taste mild; lamellae adnate, becoming sinuate or emarginate, thick, broad, subdistant, very dark-violet, becoming ashy-cinnamon; stipe long and stout, 7–12 cm. long, 10–15 mm. thick, clavate or clavate-bulbous, dark-violet, fibrillose, spongy in the rounded bulb, violaceous within, the bulb large; spores large, broadly ellipsoid, rough, 12–16 × 7–9 μ (often 16–18 μ, then smoother and more elongate).

TYPE LOCALITY: Sweden.
HABITAT: In deep moss, in coniferous forests.
DISTRIBUTION: New England and Canada to Alabama and Minnesota; Colorado to Idaho; Oregon and Washington; also in Europe.
ILLUSTRATIONS: Fries, Sv. Aetl. Svamp. *pl. 58;* Gill. Champ. Fr. *pl. 319 (257);* Cooke, Brit. Fungi *pl. 770 (747);* Pat. Tab. Fung. *f. 127;* Ricken, Blätterp. Deutschl. *pl. 44, f. 4;* Ann. Rep. N. Y. State Mus. **48**: *pl. 12;* Bull. Conn. Geol. Nat. Hist. Surv. **15**: *pl. 23.*

80. **Cortinarius squamulosus** Peck, Ann. Rep. N. Y. State Cab. **23**: 108. 1872.

Pileus fleshy, hemispheric, then convex to subexpanded and broadly umbonate, 4–10 cm. broad; surface densely appressed-tomentose at first, soon broken up into dense, rather large, fibrillose scales, sometimes warty on the disk, brown and purplish-tinged at first, soon chocolate-brown; context thick on the disk, abruptly thin toward the margin, watery-spongy, pinkish-white to grayish-white at first; the odor somewhat spicy, more marked in age, the taste slight; lamellae adnate, then deeply emarginate, rather broad, close, purplish at first, soon dark-cinnamon to chocolate-brown, the edge minutely flocculose; stipe stout, 8–15 cm. long, 10–20 mm. thick at the apex, swollen near the base into a large, ventricose-clavate bulb, tapering below the bulb, watery-spongy within, at first purplish, soon chocolate-brown, sometimes sub-scaly, sometimes fibrillose, annulate above by a definite band-like collar, the bulb 2–3 times

as thick; cortina pallid to brownish, closely woven; spores broadly ellipsoid to subspheroid, distinctly rough, 6.5–8.5 × 6–6.5 μ, dark-rusty-brown in mass.

TYPE LOCALITY: Sandlake, New York.
HABITAT: On the ground, in swampy frondose or mixed woods.
DISTRIBUTION: New England to Wisconsin.
ILLUSTRATIONS: Ann. Rep. N. Y. State Cab. 23: *pl. 3, f. 1–3.*

81. **Cortinarius asper** Peck, Ann. Rep. N. Y. State Mus. 24: 72. 1872.

Pileus fleshy, firm, hemispheric, then convex, 5–8 cm. broad; surface rough with minute, erect, brown scales, ochraceous; lamellae close, rounded behind and slightly emarginate, dull-violaceous at first, then pale-cinnamon; stipe cespitose, equal, 7–10 cm. long, 6–10 mm. thick, solid, bulbous, fibrillose-scaly, colored like the pileus but smooth and violaceous at the top, violaceous within, the bulb white with an abundant mycelium; spores broadly ellipsoid, 7–7.5 × 5–6 μ.

TYPE LOCALITY: Greig, New York.
HABITAT: On the ground, in cleared places.
DISTRIBUTION: New England and New York.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. 24: *pl. 1, f. 1, 2.*

82. **Cortinarius pholideus** Fries, Epicr. Myc. 282. 1838.

Agaricus pholideus Fries, Syst. Myc. 1: 219. 1821.

Pileus fleshy, hemispheric-campanulate at first, then expanded, broadly umbonate, 4–8 cm. broad; surface covered by dense, innate, erect or squarrose, tawny (R), cinnamon-brown (R) or blackish-pointed hairy scales, tawny-olive (R) at first, not hygrophanous; context thin, slightly violaceous, soon whitish or sordid-brownish, usually infested with larvae, the odor and taste mild; lamellae narrowly adnexed, moderately broad, close, lilaceous at first, soon clay-colored to brown, the edge entire; stipe 4–8 cm. long (sometimes longer), 5–12 mm. thick, spongy-stuffed and tunneled by larvae, slightly narrowed upward, violaceous or lilac-tinged above the concentric, squarrose, brown scales representing the sheathing universal veil; cortina sparse, fibrillose; spores ovoid, rough-punctate, 6–7.5 × 5–5.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: Around much-decayed logs or debris, in coniferous forests.
DISTRIBUTION: New England to Wisconsin; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 761 (760);* Grevillea *pl. 117, f. 1;* Ricken, Blätterp. Deutschl. *pl. 46, f. 4;* C. H. Kauffman, Agar. Mich. *pl. 76.*

83. **Cortinarius camphoratus** Fries, Epicr. Myc. 280. 1838.

Agaricus camphoratus Fries, Syst. Myc. 1: 218. 1821.

Pileus fleshy, at first subhemispheric, then convex to subexpanded, obtuse or obsoletely subumbonate, 5–8 cm. broad; surface at first lavender (R) to deep-lavender (R), in age cinnamon-buff (R), at first silky or subflocculose, glabrescent and at length subshining, even; margin at first incurved, then decurved, silky from the pale-lavender veil; context rather thick on the disk, thin on the margin, at first Rainier-blue (R) fading to drab or whitish, the odor strongly fetid, penetrating, persisting, worse on drying over flame, almost like asafoetida, approaching that of *Claudopus nidulans;* lamellae adnate at first, then emarginate to spuriously subdecurrent, thin, close, 3–6 mm. broad, at first Rainier-blue (R) or slate-violet (R), darker in age from the cinnamon-brown spores, the edge minutely flocculose; stipe clavate-bulbous or clavate-attenuate, often short-pointed below enlargement, 7–10(–12) cm. long, 10–20 mm. or more thick, solid, soon riddled by larvae, at first Rainier-blue at the apex, paler downward, fading like the pileus, whitish at the base within, at first thinly covered by the lavender to grayish universal veil, becoming fibrillose and whitish downward; spores subalmond-shaped, inequilateral, slightly rough, 9–11(–12) × 5–6 μ.

TYPE LOCALITY: Sweden.
HABITAT: Under conifers, in the mountains.
DISTRIBUTION: Adirondack Mountains, New York; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 152, f. 2;* Cooke, Brit. Fungi *pl. 771 (751);* Gill. Champ. Fr. *pl. 201.*

84. **Cortinarius pyriodorus** C. H. Kauffman, sp. nov.

Pileus fleshy, rather firm, campanulate-convex, then broadly expanded, obtuse or subumbonate, 4–8 cm. broad; surface dry, glabrous and innately silky-fibrillose, shining, even, unicolorous when fresh, at first Hays-lilac (R) to deep-lavender (R), at maturity deep-vinaceous-lavender (R), the color fading slowly or subpersistent; margin at first incurved and decurved, bordered by narrow shreds of the lilaceous veil; context compact and thick on the disk, abruptly thin on the margin, concolorous, the taste mild, the odor moderately strong, penetrating, spicy in fresh plants, of overripe pears or musty apples, but variable, not truly fetid; lamellae adnate, at length subdecurrent, close, distinct, moderately broad, 6–10 mm., tapering in front, at first lilaceous, then purplish or soon cinnamon-brown; stipe rather long and stout, tapering upward from a clavate base, 10–12 cm. thick above, 2 cm. at base, solid, concolorous except the whitish base, the apex lilaceous or lavender within, at first thinly peronate by the appressed, Hays-lilac (R), universal veil, which becomes broken into evanescent paler patches, at length subfibrillose, the bulb whitish or sublutescent within; spores ellipsoid-subfusiform, subacute at ends, scarcely rough, 7.5–9 × 5–5.5 μ, pale-cinnamon under the microscope. (See page 348.)

Type collected on deep moss, in forest of Douglas fir and hemlock, Lake Cushman, Washington, October 15–25, 1915, *C. H. Kauffman* (herb. Univ. Mich.).

DISTRIBUTION: Olympic Mountains, Washington; Cascade Mountains, Oregon; Rocky Mountains, Colorado.

85. **Cortinarius argentatus** Fries, Epicr. Myc. 279. 1838.

Agaricus argentatus Fries, Syst. Myc. 1: 218. 1821.

Pileus fleshy, convex to almost plane, 5–9 cm. broad; surface silvery-violaceous-whitish, sometimes with a lilac or amethystine tinge, dry, beautifully appressed-silky, even, not umbonate; context whitish or at first violaceous-tinged, thick on the disk, abruptly thin on the margin, the odor mild, the taste slight; lamellae narrowly sinuate-adnate, narrow, close, pale-violaceous, rarely deep-violaceous at first, soon pale-alutaceous-cinnamon, the edge minutely eroded-crenulate; stipe 5–8 cm. long, 10–20 mm. thick, solid, subequal above the ovoid-bulbous or rounded-bulbous base with the bulb sometimes subemarginate and not depressed or sometimes subobsolete, soon silvery-violaceous-whitish, at first somewhat deeper-violet at the apex, concolorous within, at first subfibrillose from the violaceous-white cortina, then innately silky, not at all peronate; spores ellipsoid, slightly rough, 7–9.5 × 5–6 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in mixed and coniferous forests.
DISTRIBUTION: New York and Michigan; also in Europe.
ILLUSTRATION: Gill. Champ. Fr. *pl. 194.*

86. **Cortinarius alboviolaceus** Fries, Epicr. Myc. 280. 1838.

Agaricus alboviolaceus Fries, Syst. Myc. 1: 218. 1821.

Pileus fleshy, campanulate, then convex and broadly umbonate, 3–6 cm. broad; surface dry, beautifully appressed-silky, shining, varying pale-violaceous to cesious-buff, soon silvery-white and scarcely violaceous-tinged, even, the margin persistently decurved; context thin on the margin, cesious or violet-tinged; surface differentiated into a thin layer, up to 15 μ thick, composed of narrow, horizontal hyphae about 3 μ in diameter, the odor and taste mild; lamellae at first adnate, then emarginate or slightly subdecurrent, close, moderately broad, varying pale-violet to ashy-purplish at first, soon paler, at length cinnamon-brown, the edge eroded-crenulate; stipe clavate-thickened at or near the base, narrowed upward, 4–8 cm. long, 5–9 mm. thick above, 20 mm. below, spongy-stuffed, usually peronate by the thin, white, appressed, silky-interwoven, soft universal veil, violaceous above and beneath the veil; cortina white; spores ellipsoid-oval to narrow-ellipsoid, scarcely rough, variable in size, 6.5–9 × 4–5 (rarely 10 × 5.5) μ.

TYPE LOCALITY: Sweden.
HABITAT: Among humus, in frondose, mixed, and coniferous forests.
DISTRIBUTION: New England to Minnesota and Canada, and southward to Tennessee and Missouri; Colorado; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 151, f. 3;* Gill. Champ. Fr. *pl. 321 (191);* Cooke, Brit. Fungi *pl. 747 (749);* N. Marsh. Mushr. Book *pl. 14;* Hard, Mushr. *f. 237;* Ricken, Blätterp. Deutschl. *pl. 44, f. 5.*

87. **Cortinarius obliquus** Peck, Bull. N. Y. State Mus. 10: 951. 1902.

Pileus fleshy, broadly convex, subexpanded, 3–6 cm. broad; surface dry, silky-fibrillose, violaceous-white or grayish-white, the margin at first incurved; context thickish on the disk, concolorous, the odor and taste mild; lamellae adnate, thickish, narrow, heliotrope-purple to deep-lavender at first, at length cinnamon-brown, close, obscurely transversely rivulose, the edge minutely crenulate; stipe short and rather stout, 3–6 cm. long, 6–12 mm. thick above, solid, silky-fibrillose, whitish, violet-tinged within and without, equal above the abrupt, depressed-marginate, oblique bulb; spores narrowly ellipsoid, slightly rough, rather variable, 7–9.5 × 4.5–5.5 μ.

TYPE LOCALITY: Bolton, New York.
HABITAT: On the ground, in frondóse or mixed woods.
DISTRIBUTION: New England to Wisconsin, North Carolina, and Missouri.
ILLUSTRATION: Bull. N. Y. State Mus. 10: *pl. L, f. 1–5.*

88. **Cortinarius lilacinus** Peck, Ann. Rep. N. Y. State Mus. 26: 61. 1874.

Pileus fleshy, firm, hemispheric, then convex, 5–9 cm. broad; surface minutely silky or glabrous, lilac-colored, the margin at first incurved; context very thick on the disk, compact and firm, tinged with lilac, the odor and taste slight; lamellae adnexed, rounded behind, rather broad, thick, close to subdistant, sometimes transversely rivulose, lilac at first, then cinnamon, the edge entire; stipe stout, 6–12 cm. long, 15–20 mm. thick, with a very large clavate bulb, 2–4 cm. thick, solid, compact, the bulb spongy, fibrillose, lilaceous; spores broadly ellipsoid, rather obtuse, scarcely rough, 8–10 × 4.5–6.5 μ.

TYPE LOCALITY: Croghan, New York.
HABITAT: On mossy ground, in low, mixed or frondose woods.
DISTRIBUTION: New England to Wisconsin and Tennessee.
ILLUSTRATION: C. H. Kauffman, Agar. Mich. *pl. 82.*

89. **Cortinarius Braendlei** Peck, Bull. Torrey Club 32: 79. 1905.

Pileus firm, convex, 7–12 cm. broad; surface silky, brownish-lilac, often varied by yellowish-brown stains, the margin at first incurved and covered by the grayish-white silky cortina; context lilac, especially in the young plant, with the odor of radish; lamellae adnate, slightly rounded behind, narrow, close, eroded on the edge, grayish, tinged with lilac; stipe stout, 5–7 cm. long, 10–15 mm. thick, solid, silky-fibrillose, bulbous, white or whitish, the bulb often pointed below; spores oblong-ellipsoid, obscurely granular, 12–15 × 7–8 μ.

TYPE LOCALITY: Washington, District of Columbia.
HABITAT: Among fallen leaves, in woods.
DISTRIBUTION: Known only from the type locality.

90. **Cortinarius subpulchrifolius** C. H. Kauffman, Agar. Mich. 1: 371. 1918.

Pileus fleshy, firm, subhemispheric at first, then broadly convex to expanded, often gibbous, obtuse, 4–10 cm. broad; surface not hygrophanous, innately silky-tomentose, glabrescent, even, grayish-buff, becoming ochraceous or rusty-stained in age, the margin at first incurved, then spreading and whitened by the veil; context thick, compact, pale-cesious, then whitish, the odor slight, the taste mild; lamellae adnate at first, becoming sinuate-subdecurrent, broad, subventricose, subdistant, at first dull-purple, the color subpersisting, at length cinnamon-umber, thickish, the edge entire; stipe stout, equal, or slightly enlarged below, 5–10 cm. long (often of medium length), 10–15 mm. thick, firm, solid, sheathed by the distinct, appressed, dingy-white universal veil terminating at or above the middle in an evanescent floccose-fibrillose ring, sometimes only marked by the thin subannular patches of this veil, the apex violaceous or pale-drab, whitish to drab within; cortina white, rather copious; spores broadly ellipsoid, distinctly rough-punctate, maturing slowly, 9–10 × 5–6.5 μ, rusty in mass.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: On the ground, in frondose and mixed woods.
DISTRIBUTION: Michigan.

91. **Cortinarius pulchrifolius** Peck, Ann. Rep. N. Y. State Mus. **33**: 20. 1883.

Pileus fleshy, convex or expanded, obtuse, 5–10 cm. broad; surface silky-fibrillose, whitish or reddish-gray, the margin whitened by the veil; lamellae emarginate, broad, subdistant, bright-purple or violet-purple, then umber; stipe 5–10 cm. long, 6–10 mm. thick, solid, cylindric above the clavate or oval bulb, silky-fibrillose, white, often violet-tinged, violaceous within; cortina copious; spores ellipsoid, rough, 10–12.5 × 6.5–7.5 μ.

TYPE LOCALITY: Wading River, New York.
HABITAT: On the ground, in oak woods.
DISTRIBUTION: New England, New York and New Jersey.

92. **Cortinarius rimosus** Peck, Ann. Rep. N. Y. State Mus. **48**: 110. 1897.

Pileus fleshy, firm, convex or plane, 5–10 cm. broad; surface glabrous, at first pale-grayish-violaceous, then tinged reddish-brown, the surface cracking into appressed scales or becoming variously rimose; context whitish; lamellae emarginate, rather broad, distant, subventricose, violaceous at first, becoming brownish-ochraceous; stipe 4–8 cm. long, 8–12 mm. thick, equal to slightly enlarged at base, white and silky from the white veil, violaceous-tinged within; spores ellipsoid, obtuse at ends, rough, 9–12 × 5.5–6.5 μ.

TYPE LOCALITY: Westport, New York.
HABITAT: On grassy places, in thin woods.
DISTRIBUTION: Known only from the type locality.

93. **Cortinarius rubrocinereus** Peck, Ann. Rep. N. Y. State Mus. **33**: 20. 1883.

Pileus fleshy, convex, then expanded, 5–7 cm. broad; surface silky-fibrillose, reddish-cinereous; context at first violaceous; lamellae emarginate, rounded behind, subdistant, dingy-violaceous at first, soon pale-cinnamon; stipe short, 4–5 cm. long, 8–12 mm. thick, solid, ovoid-bulbous, silky-fibrillose, whitish tinged with violet; spores broadly ellipsoid, obtuse at ends, variable in size, 8.5–11.5 (a few up to 14) × 6–7.5 μ.

TYPE LOCALITY: Riverhead, New York.
HABITAT: Sandy soil, in open places.
DISTRIBUTION: Known only from the type locality.

94. **Cortinarius annulatus** Peck, Ann. Rep. N. Y. State Mus. **43**: 65. 1890.

Cortinarius lutescens Peck, Ann. Rep. N. Y. State Mus. **42**: 118. 1889.

Pileus fleshy, broadly convex at first, then subexpanded, obtuse, 3–9 cm. broad; surface dry, the disk or entire surface usually covered with innumerable, minute, pointed, erect, floccose, tawny-yellow scales, with a bronze lustre, the margin at first incurved; context thick, whitish, scarcely or not at all hygrophanous, with the odor of radish, the taste mild or slightly astringent; lamellae adnate, becoming emarginate, rather narrow, 4–9 mm., subdistant, distinct, at first pallid-ochraceous, then rusty-cinnamon, rather rigid, the edge paler; stipe clavate, 4–8 cm. long, the apex 8–15 mm. thick, twice as thick below, sometimes subequal, peronate three fourths to the apex by the thin, silky-woven, appressed, pale-tawny or yellowish universal veil terminating above in an obscure ring, solid, yellowish within, whitish and fibrillose above the veil from the white cortina, base whitish, arising from a white mycelium; spores globose, distinctly rough, 6–7 × 5–6 μ, dark rusty-brown under the microscope.

TYPE LOCALITY: Whitehall, New York.
HABITAT: On the ground, in frondose or mixed woods.
DISTRIBUTION: New England to Wisconsin, and southward to North Carolina, Alabama, and Missouri.
ILLUSTRATIONS: Ann. Rep. N. Y. State Mus. **43**: *pl. 2, f. 1–4;* C. H. Kauffman, Agar. Mich. *pl. 78*.

95. **Cortinarius croceocolor** C. H. Kauffman, Bull. Torrey Club **32**: 323. 1905.

Pileus fleshy, convex, then expanded, 3–7 cm. broad; surface saffron-yellow, with dense, minute, dark-brown, erect squamules on the disk, scarcely hygrophanous, not striate; context yellowish-white, thick on the disk, thin toward the margin, slightly hygrophanous, scissile; lamellae cadmium-yellow, scarcely subdistant, rather thick, emarginate, rather broad and of uniform width; stipe clavate or clavate-bulbous, 4–8 cm. long, 9–15 mm. thick below, peronate three fourths of its length by the chrome-yellow to saffron-yellow universal veil, paler at the apex, solid, saffron-colored within, soon dingy, attached to strands of yellowish mycelium; spores subspheroid to short-ellipsoid, echinulate, 6.5–8 × 5.5–6.5 μ.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On the ground, in mixed and coniferous forests.
DISTRIBUTION: New England and New York.
ILLUSTRATIONS: Bull. Torrey Club **32**: 314. *f. 5;* Jour. Myc. **13**: *pl. 93;* C. H. Kauffman, Agar. Mich. *pl. 81.*

96. **Cortinarius callisteus** Fries, Epicr. Myc. 281. 1838.

Agaricus callisteus Fries, Syst. Myc. **1**: 228. 1821.

Pileus fleshy, campanulate-convex, subumbonate to umbonate, 4–7(–8) cm. broad; surface glabrous or cuticle at length broken into numerous minute silky scales, moist, apricot-yellow (R) to yellow-ocher (R) when fresh, becoming darker in age and then ochraceous-orange (R) to orange-rufous (R); context thick on the disk, abruptly thin on the margin, rather soft and moist, not hygrophanous, concolorous when fresh, the odor slight; lamellae adnate, then sinuate or broadly emarginate, subdistant, rather broad, subventricose, soon yellow-ocher (R), finally rusty, the edge entire; stipe firm, subcespitose, clavate-bulbous, tapering upward from bulb, 5–9 cm. long, 6–10 mm. thick above, 2–3 times as thick below, stuffed, yellowish within, externally whitish to yellowish at the apex, yellow-ocher (R) or darker elsewhere, often streaked longitudinally with fulvous fibrils; spores subglobose to globose, tuberculate, 7–8.5 × 6–7 μ, dark-rusty-brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: In coniferous forests.
DISTRIBUTION: New York to Missouri; Colorado; also in Europe.

97. **Cortinarius ochraceus** Peck, Ann. Rep. N. Y. State Cab. **23**: 109. 1872.

Pileus fleshy, convex, broadly subumbonate or gibbous, 5–8 cm. thick; surface glabrous, pale-ochraceous, even or obscurely wrinkled; context thick, whitish; lamellae emarginate, rather broad, subdistant, pallid to pale-ochraceous at first, then rusty-cinnamon; stipe rather stout, clavate or clavate-bulbous, 5–10 cm. long, 8–12 mm. thick, fibrillose, ochraceous above the white appressed sheath of the universal veil, the bulb 20–38 mm. thick; spores broadly ellipsoid, obtuse at ends, slightly rough, 9–11.5 × 6–7.5 μ.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: Under balsam trees, in open places.
DISTRIBUTION: Known only from the type locality.

98. **Cortinarius flavifolius** Peck, Ann. Rep. N. Y. State Mus. **41**: 72. 1888.

Cortinarius newfieldiensis Ellis & Ev. N. Am. Fungi *3052*. 1894.

Pileus fleshy, convex, then expanded, almost plane, 8–15 cm. (usually 4–8 cm.) broad; surface creamy-buff at first, sordid-buff to ochraceous or pale-tawny-yellowish in age, appressed-tomentose or minutely fibrillose-scaly, sometimes only silky-tomentulose, the margin at first incurved; context thick, abruptly thin toward the margin, whitish, scarcely hygrophanous but moist; lamellae adnate, then emarginate, subdistant, broad, dull-pale-yellowish at first, then ocher-yellow, finally yellowish-cinnamon or rusty; stipe clavate or clavate-bulbous,

sometimes subequal, 6–12 cm. long, 6–18 mm. thick above, 15-30 mm. below, spongy-solid, covered at first by a thin, silky-woven, appressed, whitish universal veil, at length peronate or becoming naked; cortina white, silky, copious, sometimes forming a rusty-stained ring above the veil; spores spheroid to oval-ellipsoid, with an abrupt, long apiculus (as in species of *Russula*), minutely but distinctly rough, 6–9 × 5–6 μ (including apiculus).

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On the ground, in frondose and mixed woods.
DISTRIBUTION: New England to Wisconsin, Tennessee, and Missouri.
ILLUSTRATIONS: C. H. Kauffman, Agar. Mich. *pl. 79, 80;* Atk. Stud. Am. Fungi *pl. 45, 46* (as *C. ochroleucus*).

99. **Cortinarius Whitei** Peck; V. White, Bull. Torrey Club **29**: 560. 1902.

Pileus fleshy, very firm, rigid-brittle, subhemispheric or irregularly oval, then campanulate to expanded, sometimes subconic-campanulate or subumbonate, 5–10(–13) cm. broad; surface dry, at first minutely flocculose-silky, glabrescent, the coarse cuticle often becoming radially cracked or lacerate-fibrillose toward the margin in age, ochraceous-orange (R) to Mars-yellow (R), somewhat ferruginascent in age; margin often irregular; context concolorous or slightly paler near the lamellae, compact, the odor and taste mild; lamellae adnate and rounded behind at first, then sinuate-emarginate, rigid and transversely cracked in age, close to subdistant, broad behind, abruptly narrowed in front, at first light-orange-yellow (R), then Sudan-brown (R) or discolored, the edge entire or split; stipe rather long, stout, equal or tapering downward to subventricose, 7–10(–12) cm. long, 10–20 mm. thick, solid, rigid, hard, with a fibrous and tough rind which cracks and peels in age, pale-orange-yellow (R), concolorous within, covered at first by the concolorous, thin, subevanescent universal veil; cortina concolorous; spores subglobose, slightly rough or almost smooth, 7–8(–9) × 6–7 μ, rusty-yellow under the microscope.

TYPE LOCALITY: Maine.
HABITAT: On the ground, in northern mixed forests.
DISTRIBUTION: Northern New England, New York (Adirondack Mountains), Canada, and Michigan; Oregon.

100. **Cortinarius catskillensis** Peck, Ann. Rep. N. Y. State Cab. **23**: 109. 1872.

Pileus fleshy, convex or subcampanulate, then subexpanded, even, 5–8 cm. broad; surface grayish-drab (pale-ferruginous?), variegated with minute, scattered, white fibrils; lamellae deeply emarginate, close to subdistant, rather broad, watery-cinnamon at first, becoming darker with age; stipe stout, 6–9 cm. long, 10–20 mm. thick, solid, fibrillose, whitish, clavate-bulbous, tapering upward; spores narrowly ellipsoid, somewhat pointed at one end, 7–8 × –4 4.5 μ.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On the ground, in open places.
DISTRIBUTION: New York.

101. **Cortinarius caespitosus** Peck, Ann. Rep. N. Y. State Mus. **42**: 117. 1889.

Pileus fleshy, firm, convex, often irregular from its crowded mode of growth, 5–10 cm. broad; surface pale-yellow or buff, a little darker on the disk, the margin silky-fibrillose; context white; lamellae adnexed, rounded behind, thin, close, rather broad, whitish at first, then subochraceous; stipe subequal above, 3–7 cm. long, 8–12 mm. thick, with a clavate-bulbous base, silky-fibrillose, floccose-villose at the apex, subannulate, white; spores narrowly ellipsoid, smooth, 8–9.5 × 4–4.5 μ, pale.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: Mossy ground, in open forest.
DISTRIBUTION: New York.

102. **Cortinarius canescens** Peck, Ann. Rep. N. Y. State Mus. 42: 117. 1889.

Pileus fleshy, rather firm, subcampanulate, then convex-expanded to plane, obtuse or obsoletely broadly subumbonate, at length depressed, 4–7(–8) cm. broad; surface moist when fresh, soon dry, even, at first with a thin, appressed, white-silky covering, at length minutely scaly from the innate silky and pale-drab-gray fibrils, light-buff (R) when young, finally cinnamon-buff (R) with a tinge of gray or drab, clay-colored (R) in age; context rather thin on the margin, subscissile, tilleul-buff (R) to pallid, the odor earthy, the taste slightly unpleasant; lamellae adnexed, then emarginate, rounded behind, close to subdistant, broad (up to 10 mm.), thin, at first pallid, soon buckthorn-brown (R) to cinnamon-brown (R), the edge entire; stipe usually tapering upward from a large, soft, spongy, clavate-thickened base, 5–8(–10) cm. long, 8–15 mm. thick, peronate from the appressed, white-silky universal veil, solid, soon tunneled by larvae, pallid or tilleul-buff (R) at the apex and within; cortina white; spores ellipsoid, scarcely subinequilateral, subacute at one end, slightly rough, 10–12 × 5.5–6.5 μ, dark-rusty under the microscope.

TYPE LOCALITY: North Elba, New York.
HABITAT: Under spruce.
DISTRIBUTION: Adirondack Mountains, New York.

103. **Cortinarius suillus** Fries, Epicr. Myc. 281. 1838.

Pileus fleshy, firm, campanulate-convex to subexpanded, obtuse or subumbonate, 8–10 cm. broad; surface dry, innately minutely scaly by the slight laceration of the cuticle, at length flocculose-squamulose, ochraceous-salmon (R) to apricot-buff (R), slightly nigrescent when bruised; context thick, thin on the margin, moist or subhygrophanous when fresh, scissile, fading to pallid or sordid-white, the odor slight, radishy; lamellae adnate, close to subdistant, broad, the shorter gills narrower, ochraceous-tawny (R) to cinnamon-rufous (R), inclined to turn blackish when bruised, the edge entire; stipe stout, 7–10 cm. long, 1.5–2 cm. thick at the apex, firm, spongy-solid within, clavate-bulbous, tapering upward, white or whitish, sordid when bruised, innately silky-fibrillose or with loose fibrils on the surface from the white, rather copious cortina, with a white mycelioid tomentum on the lower part of the bulb, the bulb up to 3 cm. thick; spores ellipsoid, slightly tuberculate, 9–10(–11) × 5–6(–7) μ, brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under spruce and fir, in higher mountains.
DISTRIBUTION: Colorado; also in Europe.
ILLUSTRATION: Fries, Ic. Hymen. *pl. 152, f. 3.*

104. **Cortinarius bolaris** Fries, Epicr. Myc. 282. 1838.

Agaricus bolaris Fries, Syst. Myc. 1: 228. 1821.

Pileus fleshy, convex-expanded, obsoletely umbonate, 3–6 cm. broad; surface variegated by appressed, pink-red, saffron-red, or cinnabar-red, hairy scales on a white ground, dry, fading, the thin incurved margin surpassing the gills; context white, tinged with creamy-yellow, thin, the odor and taste none; lamellae adnate, close, moderately broad, distinct, pallid, soon pale-cinnamon; stipe tapering upward and subequal, 5–6 cm. long, 5–10 mm. thick, stuffed, then hollow, covered like the pileus by red, fibrillose-hairy, appressed scales, sometimes subglabrescent, the flesh becoming saffron or reddish when bruised; cortina white; spores broadly oval to subspheroid, scarcely rough, 6–7 × 5–5.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: Among decaying leaves, in coniferous and mixed forests.
DISTRIBUTION: New England to Michigan, and southward to Tennessee; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 769 (759);* Gill. Champ. Fr. *pl. 322 (199);* Grevillea *pl. 79;* Ricken, Blätterp. Deutschl. *pl. 46, f. 2;* C. H. Kauffman, Agar. Mich. *pl. 77.*

105. **Cortinarius distortus** C. H. Kauffman, sp. nov.

Pileus fleshy, very fragile, irregularly subhemispheric to campanulate, obtuse, subexpanded, 3–8 cm. broad; surface somewhat moist and white-silky or hoary at first, soon dry,

glabrescent, even, apricot-buff (R) to salmon-buff (R), sometimes darker at maturity; margin at first incurved, then decurved; context rigid-brittle, thick, abruptly thin on the margin, watery-whitish, soon dry, not scissile, the odor and taste mild; lamellae variously attached because of the frequently distorted pileus, adnate or adnexed to almost free (as in *C. camurus*), narrow to moderately wide, sometimes deformed, subdistant, thickish, easily separable from the trama of the pileus, pale-clay-colored (R), then darker; stipe very cespitose, stout, 8–12(–14) cm. long, 10–30 mm. thick, brittle, irregularly subclavate to clavate-bulbous or subequal, often compressed, inflated-gyrose or with irregular longitudinal furrows, more distorted on drying, hollow with cartilaginous context, easily splitting in age, white within and without, becoming sordid-wood-brown in age, the surface with obscure white annular bands from the delicate white universal veil, at length silky-fibrillose throughout; cortina white, fibrillose-silky, rather copious; spores ellipsoid, obtuse, the inner wall pale-sordid-yellowish and punctate-rough, 10–12 × 5.5–6.5 μ. (See page 348.)

Type collected under Douglas fir and hemlock, 900 meters elevation, October 16, 1915, Lake Cushman, Washington, *C. H. Kauffman* (herb. Univ. Mich.).

DISTRIBUTION: Washington.

106. **Cortinarius pinetorum** C. H. Kauffman, Papers Mich. Acad. 1: 139. 1923.

Cortinarius argentatus pinetorum Fries, Monog. Hymen. Suec. 1: 46. 1857.

Pileus somewhat fleshy, campanulate-convex, obtuse or broadly subumbonate, 3–6(–7) cm. broad; surface glabrous, innately silky, sometimes almost viscid in wet weather, shining, even, silvery-whitish to light-drab (R), becoming deeper-drab on drying; margin thin, at first incurved and white-flocculose-silky, thin, at length decurved; context moderately thick on the disk, watery-mottled, then as if subhygrophanous, the odor slight or penetrating-earthy, the taste slightly disagreeable; lamellae adnexed, rounded behind or at length emarginate, moderately narrow to rather broad, 5–8 mm., becoming ventricose, close to subdistant, thickish, distinct, at first pallid or with tint of drab, then alutaceous; stipe clavate and tapering upward or clavate-subbulbous, becoming elongate-subequal, 4–7 cm. long, 6–12 mm. thick at the apex, concolorous, sheathed at first below the middle by the thin, appressed, whitish universal veil, solid, glabrescent and at length silky-shining; spores subellipsoid, inequilateral, narrower toward one end, almost smooth, 7–8.5(–9) × 5–5.5(–6) μ, pale-yellowish-brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under pine, spruce, and fir.
DISTRIBUTION: Colorado; also in Europe.
ILLUSTRATION: Cooke, Brit. Fungi *pl. 746*.

107. **Cortinarius modestus** Peck, Ann. Rep. N. Y. State Mus. 26: 62. 1874.

Pileus fleshy, convex to expanded, 2–4 cm. broad; surface fibrillose, even or slightly rugulose-wrinkled, alutaceous; context white; lamellae close, adnexed, moderately broad, nearly plane, pallid at first, then cinnamon; stipe clavate-bulbous, 5 cm. long, 4 mm. thick above, subfibrillose, hollow or stuffed with white pith, concolorous; spores broadly ellipsoid, 7–8.5 × 5–6 μ.

TYPE LOCALITY: Croghan, New York.
HABITAT: On the ground, in woods.
DISTRIBUTION: Known only from the type locality.

108. **Cortinarius brevipes** Peck, Ann. Rep. N. Y. State Mus. 41: 71. 1888.

Pileus fleshy, convex, 3–5 cm. broad; surface silky-fibrillose, sordid-white; context yellowish-white; lamellae close, adnexed, pale-violaceous becoming cinnamon; stipe short, rather

stout, 2–3 cm. long, 8–12 mm. thick, silky-fibrillose, whitish, pale-violaceous within, bulbous, the bulb thicker; spores subellipsoid, 9–10 × 5–6 μ.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On the ground, in woods.
DISTRIBUTION: New York.

109. **Cortinarius squarrosus** Clements, Bot. Surv. Neb. 5: 11. 1901.

Pileus fleshy, broad, campanulate, then convex, subumbonate, 2.5–3 cm. broad; surface dry, clothed on the disk by dense, squarrose, umber scales, fasciculate-fibrillose on the margin, pallid-umber; lamellae slightly adnate, ventricose, sometimes uncinate, fulvous to umber; stipe subequal, 3–4 cm. long, 5 mm. thick, hollow, fibrous-fleshy, clothed with fulvous-umber, subsquarrose fibrils; cortina fibrillose, umber, fugacious; spores irregularly ellipsoid, smooth, 12 × 6 μ.

TYPE LOCALITY: Little Blue River, Endicott, Nebraska.
HABITAT: Among vegetation on the ground, in woods.
DISTRIBUTION: Known only from the type locality.

110. **Cortinarius sanguineus** Fries, Epicr. Myc. 288. 1838.

Agaricus sanguineus Fries, Syst. Myc. 1: 229. 1821.

Pileus fleshy, obtuse or umbonate, campanulate, 2–4 cm. broad; surface dry, innately silky or minutely scaly, opaque, dark-blood-red; context blood-red, thin on the margin, the odor mild, the taste slightly that of radish; lamellae adnate, rather broad, close, dark-blood-red; stipe elongate in moss, equal or tapering, 5–10 cm. long, 3–7 mm. thick, stuffed, then hollow, relatively slender, blood-red, darker where bruised; cortina fibrillose, red-tinged; spores narrow-ellipsoid, roughish, 7–8 × 4–5 μ, red-tinged.

TYPE LOCALITY: Sweden.
HABITAT: On deep moss, in coniferous forests.
DISTRIBUTION: New York and Michigan; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 786 (775)*; Gill. Champ. Fr. *pl. 326 (246)*.

111. **Cortinarius cinnabarinus** Fries, Epicr. Myc. 287. 1838.

Agaricus purpureus Fries, Syst. Myc. 1: 228. 1821.

Pileus fleshy, campanulate, umbonate, sometimes plane, 3–6 cm. broad; surface innately silky-shining, bright-cinnabar-red, dry, even or rimose, sometimes split on the margin; context pallid-reddish, fading; lamellae adnate, then emarginate, rather broad, ventricose, subdistant, cinnabar-red, then dark-rusty-red, velvety-shimmering, the edge entire; stipe equal or tapering upward, 2–5 cm. long, 4–8 mm. thick, cinnabar-red, shining, stuffed, then hollow, fibrous, fibrillose; cortina concolorous; spores ellipsoid, slightly rough-punctate, 7–9 × 4.5–5.5μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in oak and beech woods.
DISTRIBUTION: Massachusetts to North Carolina, and westward to Wisconsin and Missouri; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 154, f. 4*; Gill. Champ. Fr. *pl. 327 (203)*; Pat. Tab. Fung. *f. 647*; Grevillea *pl. 110, f. 4*; Ricken, Blätterp. Deutschl. *pl. 47, f. 5*.

112. **Cortinarius anthracinus** Fries, Epicr. Myc. 288. 1838.

Pileus somewhat fleshy, dry, campanulate-convex, umbonate or subumbonate, subexpanded, 2–5 cm. broad; surface innately silky-fibrillose or glabrous, shining, pale-chestnut-brown to cinnamon-brown, the margin paler; context dark-reddish, slightly thick at the umbo, thin elsewhere, the odor and taste mild; lamellae broadly adnate, sometimes subdecurrent, close, rather broad, blood-red with a shimmering surface, becoming more intense and darker when bruised, the edge erose-crenulate; stipe equal, 4–6 cm. long, 3–6 mm. thick, stuffed and finally hollow, silky-fibrillose, more or less blood-red, especially toward base, the upper portion

at times cinnamon-yellow, concolorous within; mycelium reddish; spores narrow-ellipsoid, smooth, 6–7 × 4–5 μ, with a reddish tint under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: On mosses, under Douglas fir and hemlock, in mountains.
DISTRIBUTION: Olympic Mountains, Washington; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 787;* Grevillea *pl. 111, f. 1;* Ricken, Blätterp. Deutschl. *pl. 47, f. 3.*

113. **Cortinarius semisanguineus** (Fries) C. H. Kauffman, Bull. Torrey Club **32**: 320. 1905.

Agaricus cinnamomeus semisanguineus Fries, Syst. Myc. **1**: 229. 1821.

Pileus fleshy, campanulate-convex, subumbonate (varying to conic-campanulate or broadly hemispheric, often at length expanded and split on the margin), 2–6 cm. broad; surface tawny-yellow to cinnamon-yellow, silky or delicately fibrillose-scaly, sometimes shining-zoned; context dingy-yellowish-white, rather firm, the odor and taste mild; lamellae adnate-subdecurrent, narrow, crowded, cinnabar or blood-red; stipe equal or subequal, 3–6 cm. long (longer on *Sphagnum*), 3–6 mm. thick, solid-fibrous, chrome-yellow to citron-yellow, fibrillose from the yellow or tawny-yellow cortina, elastic; spores ellipsoid, smooth, 5–7 × 3–4 μ.

TYPE LOCALITY: Sweden.
HABITAT: On mosses, sphagnum, etc., in low swampy woods.
DISTRIBUTION: New England and Canada to Virginia and Alabama, and westward to Missouri; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 779;* Gill. Champ. Fr. *pl. 329 (250);* Atk. Stud. Am. Fungi *f. 151;* Ann. Rep. N. Y. State Mus. **48**: *pl. 13, f. 15–20.*

114. **Cortinarius cinnamomeus** Fries, Epicr. Myc. 288. 1838.

Agaricus cinnamomeus Fries, Syst. Myc. **1**: 229. 1821.

Pileus fleshy, campanulate-convex, obtuse or subumbonate, the umbo often vanishing, 2–4.5 cm. broad; surface yellowish-cinnamon or yellowish-tawny, silky or minutely and densely scaly from the innate or appressed, yellowish fibrils, shining; context pale-citron or straw-yellow, rarely deep yellow, thin, the odor and taste mild; lamellae adnate, varying to adnexed-emarginate or scarcely subdecurrent, rather broad, close (not truly crowded), cadmium-yellow, citron-yellow, or cinnamon-yellow, shining; stipe equal, 3–8 cm. long, 3–6 mm. thick, often flexuous, chrome to citron-yellow when fresh, darker when handled, fibrillose, stuffed, becoming tubular, olive-cinnamon-yellow within, attached to a yellow mycelium; cortina citron-yellow, fibrillose; spores ellipsoid, short, smooth, 6–7 × 4–4.5 μ (a few 8 × 5 μ).

TYPE LOCALITY: Sweden.
HABITAT: Among humus and debris, in coniferous swamps and forests.
DISTRIBUTION: New England and Canada, southward in the Appalachian Mountains, and westward to Missouri and Minnesota; Colorado, Washington and Oregon; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 777;* Gill. Champ. Fr. *pl. 328 (204);* Michael, Führer Pilzfr. **2**: *pl. 70;* Ricken, Blätterp. Deutschl. *pl. 47, f. 6;* Hard, Mushr. *f. 239;* Ann. Rep. N. Y. State Mus. **48**: *pl. 13, f. 7–14.*

115. **Cortinarius malicorius** Fries, Epicr. Myc. 289. 1838.

Pileus fleshy, obtusely convex to subexpanded, 2–6 cm. broad; surface fulvous or tawny-fulvous, tinged with golden-yellow, silky-tomentose, subzonate in age; context intensely olivaceous when fresh, scissile, thick on the disk, the odor and taste mild; lamellae sinuate or adnate-subdecurrent, close, not broad, rusty-yellow, then dark-golden-fulvous; stipe equal or subequal, 5–7 cm. long, 6–12 mm. thick, becoming hollow, fibrillose from the orange-fulvous cortina, olivaceous-tinged, soon yellow-fulvous, or reddish-stained, olivaceous within; spores short-ellipsoid, slightly rough, 6–7 × 4–4.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in low or swampy coniferous forests.
DISTRIBUTION: New York to Colorado and Washington; also in Europe.
ILLUSTRATION: Fries, Ic. Hymen. *pl. 155, f. 1.*

116. **Cortinarius croceofolius** Peck, Bull. N. Y. State Mus. 150: 26. 1911.

Pileus fleshy, broadly convex or nearly plane, obtuse or obtusely umbonate, 2.5–5 cm. broad; surface dry, slightly fibrillose, especially on the margin, brownish-cinnamon, often paler or saffron-yellow on the margin; context thin, pale-yellow, grayish or dingy when dry; lamellae thin, close, saffron-yellow verging to orange at first, then brownish-cinnamon, often yellow, crenulate on the margin; stipe equal or slightly thickened at the base, 2.5–4 cm. long, 4–6 mm. thick, fibrillose above, saffron-yellow, hollow; cortina concolorous; spores broadly ellipsoid, 6–7 × 4–5 μ.

TYPE LOCALITY: North Elba, Adirondack Mountains, New York.
HABITAT: On mossy ground, in coniferous forests.
DISTRIBUTION: New York.
ILLUSTRATION: Bull. N. Y. State Mus. 150: *pl. 6, f. 1–8.*

117. **Cortinarius aureifolius** Peck, Ann. Rep. N. Y. State Mus. **38**: 89. 1885.

Pileus fleshy, convex-campanulate, then plane, 1–4 cm. broad; surface cinnamon-brown or darker, dry, densely fibrillose-tomentose, sometimes scaly, especially on the disk; context thin, yellowish-brown or pallid, the odor that of radish, the taste slight; lamellae adnate, subventricose, broad, close, thin, yellow, then ferruginous-cinnamon; stipe subequal, rather short, 3–6 cm. long, 3–6 mm. thick, solid, fibrillose, yellow, brown within; spores oblong, smooth, 10–12.5 × 5 μ, ochraceous-cinnamon in mass.

TYPE LOCALITY: Karner, New York.
HABITAT: On sandy soil, in pine woods.
DISTRIBUTION: New England and New York.

118. **Cortinarius chrysolitus** C. H. Kauffman, Bull. N. Y. State Mus. **179**: 101. 1915.

Cortinarius raphanoides var. C. H. Kauffman, Agar. Mich. 1: 403. 1918.

Pileus slightly fleshy, convex, then plane, 1.5–4 cm. broad; surface densely innately fibrillose-hairy, even, unicolorous, light-brownish-olive (R) to buffy-citrine (R), opaque; margin at first incurved, then decurved; context concolorous, thin on the margin, the odor slight, not that of radish, the taste mild; lamellae adnate, emarginate, rather broad, close, thickish, at first chrysolite-green (R), then yellowish-cinnamon, entire on the edge; stipe slender, equal, 7–10 cm. long, 3–5 mm. thick, stuffed, then hollow, fibrillose, brownish-olive, concolorous within, mycelioid at base and attached to *Sphagnum;* cortina olivaceous; spores ovoid-ellipsoid, slightly rough, 8–9 × 5–6 μ.

TYPE LOCALITY: North Elba, New York.
HABITAT: On deep sphagnum, in swamp of balsam fir.
DISTRIBUTION: Known only from the type locality.

119. **Cortinarius raphanoides** Fries, Epicr. Myc. 290. 1838.

Agaricus raphanoides Fries, Syst. Myc. 1: 230. 1821.

Pileus slightly fleshy, rather firm, dry, campanulate-expanded, broadly umbonate, 2.5–6 cm. broad; surface innately silky-fibrillose, sometimes minutely fibrillose-scaly near the margin, glabrescent, even, at first Saccardo-umber (R) to buffy-citrine (R), finally tawny-olive (R), the margin at length undulate; context concolorous or paler, submembranous toward the margin, the odor slight but penetrating, more or less that of radish, the taste acrid or subacrid; lamellae adnate, then emarginate, close, moderately broad, at first pale-olivaceous-brownish, then cinnamon-brown, sometimes crisped in age, the edge paler; stipe 5–7 cm. long, 6–12 mm. thick, rather firm, stuffed, tapering upward from slightly enlarged base, at length equal, decorated by indistinct, fibrillose, concentric zones, at first obsoletely subperonate, the apex silky,

pallid-olivaceous within and without, the fibrils slightly darker; spores broadly ellipsoid, obtuse at ends, smooth, 7–8(–9) × 5–6 μ.

TYPE LOCALITY: Sweden.
HABITAT: On mosses, under Douglas fir and hemlock, in forests.
DISTRIBUTION: Olympic Mountains, Washington; also in Europe.

120. **Cortinarius subnotatus** Fries, Epicr. Myc. 290. 1838.

Pileus fleshy, campanulate-convex, then expanded, obtuse, orbicular to elliptic, 4–8(–10) cm. broad; surface covered by innate, minute, free-ended, silky scales, or minute tufts, medal-bronze (R) on the disk, sulphine-yellow (R) on the margin, even; margin thin, at first incurved, then spreading and sterile; context concolorous, rather soft and moist, the odor and taste mild; lamellae broadly adnate, narrower in front, at length deeply emarginate, close, thickish, sometimes crisped, at first sulphine-yellow, then darker, not reaching the margin of the pileus; stipe subequal or attenuate upward, 3–7(–8) cm. long, 6–12(–18) mm. thick, spongy within, covered downward by a sulphine-yellow (R), very thin and evanescent sheath, innately silky above; spores subglobose, rough, 7–7.5 × 6–6.5 μ, dark-rusty.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in mixed forests.
DISTRIBUTION: Adirondack Mountains, New York; also in Europe.

121. **Cortinarius clandestinus** C. H. Kauffman, sp. nov.

Pileus slightly fleshy, campanulate-convex, then plane, at first umbonate, at length depressed around the vanishing umbo, 3–6 cm. broad; surface dry, at first covered by dense, minute, clove-brown (R) fibrillose scales, the old-gold (R) ground color appearing later on the margin of the pileus and between scales, the disk at length darker; margin thin, at first incurved, then spreading and soon split, sometimes decorated at first by the olivaceous-yellowish, silky cortina; context thin, except the disk, rather fragile, yellowish-olivaceous, darker at first, the odor distinctly that of radish or sometimes slight; lamellae adnate, then sinuate, usually rather narrow, close, at very first pallid, soon lutescent or with an olivaceous tinge, finally raw-sienna (R), the edge minutely white-flocculose; stipe equal or slightly enlarged below, 6–10 cm. long, rarely longer, 5–10(–12) mm. thick, stuffed, then hollow, obsoletely peronate by a light-green-yellow (R) universal veil, but usually merely fibrillose up to the obscure annular zone, or glabrescent, sublutescent within; spores broadly ellipsoid to subglobose, rounded at the ends, smooth under high magnification, 6–7 × 5–6 μ, dark-rusty-brown under the microscope. (See page 348.)

Type collected among mosses, under Douglas fir and hemlock, Lake Cushman, Olympic Mountains, Washington, October 19, 1915, *C. H. Kauffman* (herb. Univ. Mich.).
DISTRIBUTION: New York, Colorado, and Washington.

122. **Cortinarius luteus** Peck, Ann. Rep. N. Y. State Mus. **43**: 65. 1890.

Pileus fleshy, conic or convex, 2–5 cm. broad; surface unpolished, yellow, often darker on the disk; context yellow; lamellae adnexed, yellow, subdistant, moderately broad; stipe equal, stout, 5–10 cm. long, 10–20 mm. thick, solid (!), silky-fibrillose, yellow; spores subglobose, or broadly ellipsoid, 7.5 × 6–7 μ.

TYPE LOCALITY: Sevey, New York.
HABITAT: On mossy ground, in moist woods.
DISTRIBUTION: Known only from the type locality.

123. **Cortinarius anomalus** Fries, Epicr. Myc. 286. 1838.

Agaricus anomalus Fries, Obs. Myc. **2**: 73. 1818.

Pileus fleshy, hemispheric-convex, then subexpanded, obtuse, 2–5 cm. broad; surface even, covered when young by an interwoven appressed gray silkiness, becoming pale-fulvous-alutaceous when expanded, sometimes tinged at first with violaceous-gray, at length glistening with a micaceous sheen; context thin, dark-grayish-violet at first, soon pallid, not truly hygrophanous, the odor and taste mild; lamellae adnate at first, becoming sinuate-emarginate,

not broad, close, at first cesious, violet or grayish-purplish, then alutaceous-brown, the edge lacerate-crenulate; stipe at first clavate, 4–9 cm. long, 10–18 mm. thick, then elongate and slender and 5–10 mm. thick, spongy-stuffed, at first violet, soon dingy-pallid, or only the apex violaceous-tinged, gray-violet within, when fresh dotted with dingy-ochraceous to yellowish scales, glabrescent or fibrillose, soon infested with larvae, elastic on drying; spores almost globose, rough-punctate, 7–9 × 6–7 μ.

TYPE LOCALITY: Sweden.
HABITAT: Among humus and debris, in mixed and coniferous forests.
DISTRIBUTION: New England to Michigan; Colorado; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 154, f. 2;* Cooke, Brit. Fungi *pl. 776 (772);* Ricken, Blätterp. Deutschl. *pl. 47, f. 1.*

124. **Cortinarius brevissimus** Peck, Ann. Rep. N. Y. State Mus. **41**: 71. 1888.

Pileus fleshy, convex, often irregular, 1.5–2.5 cm. broad; surface at first minutely silky, then glabrous, dingy-white to argillaceous; context whitish; lamellae adnexed, close, at first pale-violaceous, then whitish to cinnamon; stipe very short, 1–1.5 cm. long, 6–8 mm. thick, equal, hollow, silky-fibrillose, white, pale-violaceous within; spores broadly ellipsoid, 6–7.5 × 5–6 μ.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On the ground, in thin woods.
DISTRIBUTION: Known only from the type locality.

125. **Cortinarius basalis** Peck, Ann. Rep. N. Y. State Mus. **33**: 20. 1883.

Pileus fleshy, convex, then expanded, 1–2 cm. broad; surface hairy, tawny; context thin; lamellae subventricose, pale-tawny at first, cinnamon when old; stipe short, 2–2.5 cm. long, 5–6 mm. thick, hollow, fibrillose, pallid, or pale-tawny, usually with a slight, webby annulus below the middle of the stipe; spores ellipsoid, smooth, 7–8.5 × 3–4 μ, pale under the microscope.

TYPE LOCALITY: Wading River, New York.
HABITAT: On bare ground, in woods.
DISTRIBUTION: Known only from the type locality.

126. **Cortinarius subtabularis** C. H. Kauffman, Agar. Mich. **1**: 392. 1918.

Pileus fleshy, campanulate-convex at first, then plane or obsoletely umbonate, discoid, 2–6 cm. broad; surface dry, cesious or violaceous-drab to silvery-fuscous, silky-shining with white silky fibrils, even; context thin, soon pallid, the odor and taste mild; lamellae adnate, then sinuate, rather broad, close but distinct, ventricose, at first pallid with obscure violaceous tints, at length cinnamon, never truly violet or purplish, the edge entire; stipe 3–5 cm. long, 4–6 mm. thick, equal except a slight, subabrupt, bulbillate base, the apex slightly scurfy, pale-violaceous-drab, the color persistent, silky-fibrillose and shining, sometimes marked at the base by the remnants of the white cortina, stuffed, hollowed by larvae, usually strict, later flexuous or curved; spores ellipsoid, scarcely rough, 9–10 × 5 μ.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: On the ground, in frondose woods.
DISTRIBUTION: Michigan.

127. **Cortinarius castanellus** Peck, Ann. Rep. N. Y. State Mus. **29**: 43. 1878.

Pileus fleshy, convex, then expanded, umbonate, 1–2.5 cm. broad; surface innately silky, shining, glabrous, even, dark-cinnamon to chestnut-colored, the umbo blackish, streaked blackish when old; context thin, pallid; lamellae adnate and rounded behind, then emarginate, close, moderately broad, pallid, soon cinnamon-brown; stipe slender, equal or attenuate down-

ward, 4–5 cm. long, 2–4 mm. thick, dingy-white, then fuscous-tinged, stuffed, then hollow, glabrescent; spores ellipsoid, rough, 7–9 × 4.5–6 μ.

TYPE LOCALITY: West Albany, New York.
HABITAT: On the ground, in fields.
DISTRIBUTION: New York and Michigan.

128. **Cortinarius sericipes** Peck, Ann. Rep. N. Y. State Mus. **33**: 20. 1883.

Pileus fleshy, conic to subcampanulate, 1–2.5 cm. broad; surface glabrous, chestnut-colored, often darker on the umbo; lamellae ascending or ventricose, narrowed behind, close, whitish at first, then tawny to tawny-cinnamon, white on the edge; stipe slender, 2–7 cm. long, 2–4 mm. thick, equal, hollow, silky-fibrillose, slightly mealy at the apex, shining, white; spores large, almond-shaped, ventricose, somewhat pointed at the ends, rough, 15–16 × 8–9 μ.

TYPE LOCALITY: Center, New York.
HABITAT: On the ground, in thin moist woods.
DISTRIBUTION: Known only from the type locality.

129. **Cortinarius albidifolius** Peck, Ann. Rep. N. Y. State Mus. **41**: 72. 1888.

Pileus fleshy, convex, subglabrous, 3–5 cm. broad; surface whitish, tinged with yellow or pale-ochraceous, the epidermis sometimes cracking and forming scales; context thin, whitish; lamellae adnate, emarginate, subdistant, whitish at first, then cinnamon; stipe equal or slightly enlarged at base, 5–8 cm. long, 4–8 mm. thick, solid, white but variegated with yellowish floccose scales below, silky-fibrillose above; spores subglobose, 6–7.5 × 5–6 μ.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On the ground, in woods.
DISTRIBUTION: Known only from the type locality.

130. **Cortinarius colymbadinus** Fries, Epicr. Myc. 289. 1838.

Pileus fleshy, subhemispheric, then campanulate-umbonate, abruptly circularly depressed toward the decurved margin, 3–7(–8) cm. broad, the umbo obtuse; surface at first innately tomentose on the disk, or to the margin in large pilei, glabrescent and silky-shining in age, at first tawny-olive (R), then Dresden-brown (R) to old-gold (R), varying in color when wet; margin even, at length spreading or repand; context thin except the disk, subhygrophanous, concolorous, scissile; lamellae adnate, then emarginate, rather broad, 5–8 mm., narrow in front, distinct, pallid at first, then cinnamon-buff (R) to clay-colored (R); stipe equal or tapering upward, 5–8(–10) cm. long, 8–15 mm. thick, stuffed, innately silky-fibrillose, shining when dry, pallid within and without; universal veil fugacious, sometimes leaving delicate tawny-olivaceous fibrils on the stipe; spores short-ellipsoid, tuberculate, 7–8(–9) × 6–6.5 μ, yellowish under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under spruce and fir, in mountains.
DISTRIBUTION: Colorado; also in Europe.
ILLUSTRATION: Fries, Ic. Hymen. *pl. 155, f. 3.*

131. **Cortinarius decumbens** Fries, Epicr. Myc. 284. 1838.

Pileus fleshy, firm but brittle, subcampanulate, then convex, gibbous or very obtuse, 3–5(–7) cm. broad; surface even, glabrous, innately silky, sometimes very slightly viscid, shining when dry, ivory-white (R); margin at first incurved and thickly covered by the copious white but fugacious cortina; context thick, rather soft, very thin on the margin, not hygrophanous, white, the odor and taste mild; lamellae adnate, then subsinuate, close, moderately broad, whitish at first, at length sayal-brown (R), the edge entire or suberose; stipe irregularly clavate-bulbous or tapering upward unevenly, 4–6(–8) cm. long, 5–10(–18) mm. thick above, 10–15 (–30) mm. toward base, frequently decumbent below, brittle, spongy within, finally cavernous, with a cartilaginous rind, glabrous, at first covered by the concolorous, silky-interwoven, thin,

universal veil, at length sordid, white-mycelioid at base; spores subglobose, almost smooth, 7–8.5 × 5–6 μ, pale under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under spruce and fir, in mountain forests.
DISTRIBUTION: Colorado; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 816a (765a)*; Grevillea *pl. 127, f. 3.*

132. **Cortinarius torvus** Fries, Epicr. Myc. 293. 1838.

Agaricus torvus Fries, Syst. Myc. 1: 211. 1821.

Pileus fleshy, broadly convex to plane, obtuse or subumbonate, firm, 4–6 cm. broad; surface subhygrophanous, violaceous-fulvous, purplish-brown or copper-brown at first, at length paler, the disk rusty-fulvous, covered with a hoary frostiness, sometimes furfuraceous-scaly, at length glabrous, sometimes radiately wrinkled, often punctate; context at first dull-grayish-purple, at length brownish or pallid, the odor at first slight, sweet-aromatic after crushing the flesh, the taste mild; lamellae at first adnate, then emarginate-adnexed, broad, subdistant, thickish, subrigid, dark-purplish or dull-purplish at first, then dark-cinnamon-umber; stipe clavate-bulbous, tapering upward, 4–7 cm. long (sometimes longer), 7–8 mm. thick above, peronate to or above the middle by the whitish universal veil terminating above in a flaring membranous ring, dull-violaceous and silky above the veil, spongy-solid, the bulb 12–16 mm. thick; spores maturing slowly, ventricose-ellipsoid, rough-tuberculate, 8–11 × 4.5–6 μ, rusty-umber in mass.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, on humus and debris, in conifer and mixed forests.
DISTRIBUTION: New England to Tennessee, Missouri, and Minnesota; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 157;* Cooke, Brit. Fungi *pl. 801 (794);* Gill. Champ. Fr. *pl. 333 (251);* Grevillea *pl. 117, f. 2;* Ricken, Blätterp. Deutschl. *pl. 49, f. 6;* C. H. Kauffman, Agar. Mich. *pl. 83.*

133. **Cortinarius evernius** Fries, Epicr. Myc. 294. 1838.

Agaricus evernius Fries, Syst. Myc. 1: 212. 1821.

Pileus fleshy, fragile, conic-campanulate, prominently umbonate when expanded, sometimes irregular or gibbous, 3–10 cm. broad; surface hygrophanous, purple-fuscous to brownish-vinaceous (R), faded and silky in dry weather, the margin soon wavy, at first incurved and silky from the veil, glabrescent; context thin, concolorous or violaceous when moist, the odor slightly that of radish; lamellae emarginate, adnate, thickish, broad, rather distant, ventricose, at first violaceous-purple, then cinnamon-brown, the edge whitish; stipe cylindric or attenuate toward base, 10–15 cm. long (rarely 15–20 cm.), 8–20 mm. thick, sometimes flexuous, pale-lavender to deep-violet, more deeply colored at the base, marked by annular shreds of the violaceous, then whitish, universal veil over most of the surface, spongy and solid, concolorous within; cortina fibrillose, whitish, evanescent; spores ellipsoid, slightly rough, 8–9.5 (rarely 10) × 5–6 μ.

TYPE LOCALITY: Sweden.
HABITAT: Among deep moss, on decayed debris or rotten wood, in swampy or moist places, in coniferous forests.
DISTRIBUTION: New England to Michigan; Colorado to Washington and Oregon; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 866 (798);* Ricken, Blätterp. Deutschl. *pl. 49, f. 2;* Mem. N. Y. State Mus. 3: *pl. 58, f. 1–7.*

134. **Cortinarius lucorum** Fries, Hymen. Eur. 377. 1874.

Cortinarius umidicola C. H. Kauffman, Bull. Torrey Club 32: 322. 1905.
Cortinarius impennis Fries; Ricken, Blätterp. Deutschl. 1: 171. 1912.
Cortinarius erraticus Peck, Ann. Rep. N. Y. State Mus. 42: 117. 1889.

Pileus fleshy, hemispheric, then convex-expanded, firm, 5–10 cm. broad (rarely up to 14 cm.); surface hygrophanous, dull-heliotrope-purplish to army-brown (R) at the very first, soon umber and glabrous on the disk, fading to pinkish-buff and covered with innate, whitish, silky fibrils, punctate, the margin persistently incurved and decorated by narrow, whitish, transverse strips from the universal veil; context lavender to drab when young, soon faded to sordid-

whitish, thick on the disk, abruptly thin on the margin, the odor and taste mild; lamellae emarginate with a tooth, very broad, plane, then ventricose, subdistant, thick, at first lavender, soon pale-tan to cinnamon, the edge subserratulate, concolorous; stipe subequal, 6–10 cm. (rarely 10–13 cm.) long, 10–20 mm. thick, usually thickened below, sometimes narrowed below or curved, always stout, solid, lavender above the woven, sordid-white universal veil at first covering the lower part as a sheath, but soon breaking up so as to leave a band-like annulus halfway or lower on the stem, or forming adnate patches, concolorous, lavender within and soon cavernous from grubs; cortina violaceous-white; spores ellipsoid-ovoid, slightly rough, 7–9 × 5–6 μ.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On the ground, in swampy places, in frondose or coniferous forests.
DISTRIBUTION: New York to Wisconsin; Washington; also in Sweden.
ILLUSTRATIONS: Bull. Torrey Club **32**: 312. *f. 4;* Jour. Myc. **13**: *pl. 94.*

135. **Cortinarius plumiger** Fries, Epicr. Myc. 294. 1838.

Pileus fleshy, firm, campanulate, rarely conic-campanulate, obtuse or subumbonate, expanded, 5–12 cm. broad; surface with a dense, appressed, fibrillose-tomentose or fibrillose-hairy, superficial covering, hygrophanous, fading, sepia-brown at first, then light-pinkish-cinnamon (R), the margin often decorated by narrow shreds of the universal veil; context thick on the disk, thin toward the margin, pallid-brownish when moist, soon faded, the odor and taste slight; lamellae adnate, then emarginate, close, rather broad, pallid at first, rarely faintly cesious-violaceous-tinged, then clay-colored (R) to Mikado-brown (R), the edge subcrenulate or entire; stipe clavate-bulbous, stout, 5–10 cm. long, 10–18 mm. thick above, at length subcylindric above, spongy within but firm, very fibrillose, grayish-blue-violet (R) when fresh, quickly fading, concolorous within, at length pallid or dingy; cortina whitish, thin; universal veil white at first, leaving thin subannular shreds or a slight annulus on the lower part of the stipe, soon sordid-brownish; spores ellipsoid, slightly rough, 8–10 × 5–6 μ, pale-ochraceous under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in coniferous forests.
DISTRIBUTION: Adirondack Mountains, New York; also in Europe.

136. **Cortinarius deceptivus** C. H. Kauffman, Bull. Torrey Club **32**: 325. 1905.

Pileus fleshy, suborbicular to hemispheric, becoming convex-campanulate, 2–7 cm. broad; surface subhygrophanous, fawn-colored tinged with lavender, fading to light-tan, the disk alutaceous-buff, covered with minute, brownish scales when young, becoming glabrous, rugulose in age; context thin except on the disk, rather spongy, lavender when young, then pallid or sordid-tan; lamellae thick, moderately close, adnate, emarginate-narrowed in front, lavender at first, pale-tan when old, 3–5 mm. broad; stipe rather stout and clavate at first, then elongate and slender, 3–6 cm. long, 4–8 mm. thick, solid, at first covered by the thick, fibrillose universal veil, this lavender, soon fading to whitish, at length remaining as oblique, fugacious, brownish scales or partial rings, terminating above in the cortina; spores subspheroid to broadly ellipsoid, rough, 7–9.5 × 6–7 μ.

TYPE LOCALITY: Ithaca, New York.
HABITAT: On moist humus or debris, in hemlock or mixed woods.
DISTRIBUTION: New England to Wisconsin.
ILLUSTRATIONS: Bull. Torrey Club **32**: 324. *f. 7;* C. F. Kauffman, Agar. Mich. *pl. 84.*

137. **Cortinarius rubripes** C. H. Kauffman, Rep. Mich. Acad. **8**: 32. 1906.

Cortinarius rubripes Peck, Bull. N. Y. State Mus. 105: 16. 1906.

Pileus fleshy, convex-campanulate, then expanded, obtuse or subumbonate, 5–12 cm. broad; surface hygrophanous, watery-cinnamon when moist, or rufous-tinged, more or less ferruginous-stained, fading to pinkish-ochraceous in zones from the umbo outward, at length

with innate silky fibrils, sometimes wavy and irregular, glabrescent, even; context thin except on the disk, scissile, with a rufous tinge; lamellae subdistant, distinct, rather rigid, adnate, seceding in age, often with hoary fibrils at the point of attachment to the stipe, pale-cinereous-purple or rufous-tinged at first, soon reddish-cinnamon, the edge entire; stipe 5–7.5 cm. long, 5–15 mm. thick at the apex of bulb, with an oval or clavate bulb which is deep-brick-red to vermilion, paler upwards, elastic, spongy-stuffed within, glabrous, except for the fibrillose remains of the thin, evanescent, pale-reddish, universal veil; spores ellipsoid, smooth, granular within, 8–9 × 4–5 μ; mycelium brick-red and sometimes forming mycorrhizas on roots of forest trees.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: On the ground, in frondose woods.
DISTRIBUTION: New York to Wisconsin.
ILLUSTRATIONS: Bot. Gaz. **42**: 210. *f. 1*; Jour. Myc. **13**: *pl. 100*.

138. **Cortinarius injucundus** Fries, Epicr. Myc. 298. 1838.

Pileus fleshy, at first obtusely campanulate, then broadly campanulate-convex, obtuse or broadly subumbonate, 4–7 cm. broad; surface innately fibrillose, snuff-brown (R) to sayal-brown (R), fading; margin at first incurved and silky-white from the cortina; context thick on the center, rather thin towards the margin, hygrophanous, sometimes tinged bluish-violet at the very first, soon concolorous and fading to watery-white, the odor and taste slight; lamellae adnate, then emarginate with a decurrent tooth, 8–9 mm. broad behind, narrower in front, subdistant, thick, at the first pale-bluish-violet, then pale-brownish, finally clay-colored (R) to tawny-olive (R) or darker, the edge flocculose-crenulate; stipe 5–8 cm. long, 7–15(–18) mm. thick, clavate-bulbous, abruptly short-pointed below the bulb, sometimes compressed, spongy-solid, at first subperonate at and above the bulb by the brown, concolorous universal veil, the apex at first bluish-violaceous within and without, white-mycelioid at base, at length loosely fibrillose and faded to vinaceous-buff (R) or silky-shining; spores broadly ellipsoid, tuberculate, 8–10 × 5–7 μ, dark-brown under the microscope.

TYPE LOCALITY: Russia.
HABITAT: Under spruce and fir, in high mountains.
DISTRIBUTION: Colorado; also in Europe.
ILLUSTRATION: Cooke, Brit. Fungi *pl. 823* (*809*).

139. **Cortinarius alutaceofulvus** Britz. Bot. Centr. **80**: 65. 1899.

Pileus fleshy, rather brittle, hemispheric-ovoid at first, then convex-expanded, obtuse or broadly subumbonate, 5–8(–10) cm. broad; surface innately silky, snuff-brown (R) when moist, clay-colored (R) after losing moisture, hygrophanous, punctate; margin at first incurved, more or less white-silky-spotted from the cortina; context thick on the center, rather thin elsewhere, with rather soft texture, watery-brown when moist, hygrophanous, fading, the odor and taste mild; lamellae adnate, then emarginate, rather broad, subdistant, at first pallid, then clay-colored (R), becoming soft and fragile; stipe stout, 6–9(–10) cm. long, 1–2 cm. thick at the apex, twice as thick below, spongy-solid, clavate-enlarged at base, at first with thin, whitish subzonate remains of the universal veil or slightly fibrillose with loose white fibrils, dingy-pallid, often with a thick tomentum toward base, becoming sordid from handling; spores globose to subglobose, somewhat tuberculate, 6–7.5 × 5–6 μ, dark-brown under the microscope.

TYPE LOCALITY: Bavaria.
HABITAT: Under spruce and fir, in the higher mountain forests.
DISTRIBUTION: Adirondack Mountains, New York; Colorado; also in Europe.

140. **Cortinarius brunneofulvus** Fries, Epicr. Myc. 298. 1838.

Pileus convex, 3–7 cm. broad; surface hygrophanous, dark-watery-brown, glabrous, even, subvirgate on drying, the margin white from the veil, decurved; context concolorous when moist, thick on the disk, scissile; lamellae adnate, then sinuate, distinct, thickish, broad, subdistant, soon brown to dark-umber-cinnamon; stipe 5–8 cm. long, 10–15 mm. thick, narrower

upward from a clavate or bulbous base, solid, brown, longitudinally streaked with paler fibrils, annulate by a distinct whitish band at or below the middle, from the whitish, universal veil; spores ellipsoid, distinctly tuberculate, 10–12 × 6–7 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in coniferous forest.
DISTRIBUTION: Colorado to Washington and Oregon; also in Europe.
ILLUSTRATION: Ricken, Blätterp. Deutschl. *pl. 50, f. 4* (as *C. brunneus*).

141. **Cortinarius armillatus** Fries, Epicr. Myc. 295. 1838.

Agaricus armillatus Fries, Syst. Myc. 1: 214. 1821.

Pileus fleshy, campanulate with a decurved margin, then expanded, 5–12 cm. broad; surface not truly hygrophanous, tawny-rufescent to red-brick-colored, moist when fresh, innately fibrillose or minutely scaly, with shreds of the universal veil often clinging to the margin, sometimes glabrescent; context rather spongy, not very thick considering its size, dingy-pallid, the odor more or less that of radish, the taste mild; lamellae adnate, sometimes sinuate and uncinate, broad, distant, pale-cinnamon at first, then dark-rusty-brown; stipe 7–14 cm. long, 10–20 mm. thick at the apex, up to 35 mm. thick below, clavate or elongate-bulbous, solid, firm, fibrillose, brownish or pale-tawny-rufescent, encircled by several cinnabar-red zones of bands from the rather membranous, red, universal veil; cortina at first whitish, collapsing and forming a slight annulus colored by the spores; spores ellipsoid, rough-tuberculate, 10–12 × 5–6.5 μ; mycelium whitish.

TYPE LOCALITY: Sweden.
HABITAT: Among humus and decayed debris, in coniferous forests.
DISTRIBUTION: New England and Canada to Pennsylvania and Minnesota; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 158;* Cooke, Brit. Fungi *pl. 802 (800);* Gill. Champ. Fr. *pl. 335 (197);* Ricken, Blätterp. Deutschl. *pl. 48, f. 5;* Michael, Führer Pilzfr. *2: pl. 71;* N. Marsh. Mushr. Book *pl. 32;* Hard, Mushr. *pl. 243;* C. H. Kauffman, Agar. Mich. *pl. 85–86.*

142. **Cortinarius griseus** Peck, Ann. Rep. N. Y. State Mus. **41**: 72. 1888.

Pileus convex, obtuse, or gibbous, 3–7.5 cm. broad; surface fibrillose-scaly with grayish hairs or fibrils, pale-gray when moist; lamellae adnexed, subdistant, at first pallid, then brownish-ochraceous; stipe 5–7.5 cm. long, 6–12 mm. thick, tapering upward from a thickened or bulbous base, silky-fibrillose, whitish; spores broadly ellipsoid, obtuse, 10–12 × 6–7 μ.

TYPE LOCALITY: Wittenberg Mountains, New York.
HABITAT: On mossy ground, under balsam fir.
DISTRIBUTION: Known only from the type locality.

143. **Cortinarius bivelus** Fries, Epicr. Myc. 292. 1838.

Pileus fleshy, campanulate-convex, then expanded, 5–10 cm. broad, obtuse or subumbonate, the umbo broad and disappearing; surface glabrous, not canescent, moist and soft when fresh, but scarcely hygrophanous, at length somewhat shining or subrimose in spots, cinnamon-brown (R) or ochraceous-rufous (R) to ochraceous-tawny (R), sometimes darker, the margin very slightly silky; context moderately thick, thin on the margin, at length dingy-whitish, the odor rather indistinct; lamellae adnate or subemarginate, at first close to crowded, becoming more distinct, moderately broad, tawny-cinnamon, at first brownish; stipe 4–8 cm. long, 8–15 mm. thick, clavate, clavate-bulbous or elongate, stout, solid or spongy, often soon hollowed by grubs, dingy-whitish, at first covered by a peronate villose and soft veil which may form evanescent floccose rings; cortina slight; spores variable, almost smooth, 10–12 × 5.5–7 μ, dark-rusty-brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: In mixed forests, on mossy ground.
DISTRIBUTION: New York to Michigan; Colorado; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 156, f. 1;* Cooke, Brit. Fungi *pl. 852 (789);* Grevillea *pl. 111, f. 7.*

144. **Cortinarius laniger** Fries, Epicr. Myc. 292. 1838.

Pileus fleshy, campanulate-convex to convex-plane, obtuse or obsoletely subumbonate, 4–11 cm. broad; surface at first hoary-canescent or with appressed superficial silky-white fibrils, at length glabrous, scarcely hygrophanous, at first chestnut (R) to testaceous (R), varying to paler shades, even; margin whitish-silky; context rather compact, thick, especially on the disk, pallid but usually tinged testaceous (R), the odor not prominent in American form; lamellae adnate, becoming emarginate, at first close to crowded, later spuriously subdistant because of the less evident shorter gills, moderately broad, 5–9 mm., at first dusky-brown, then ferruginous (R) to tawny (R) or ochraceous-tawny (R); stipe clavate to clavate-bulbous or at length elongate-subequal, stout, 8–10 cm. long, 10–20 mm. thick, solid or at length spongy within, soon hollowed by grubs, whitish within, tomentose on the enlarged base, the tomentum continuous upward, but thinner and villose, at length frequently leaving whitish zones on the middle and below; cortina rather copious; spores ellipsoid, almost smooth, 8–11 × 5–6 μ, variable in size, rusty-brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under conifers, in the northern forests, mostly in the mountains.
DISTRIBUTION: New York to Michigan; Colorado, Oregon and Washington; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 156, f. 2;* Cooke, Brit. Fungi *pl. 800 (788);* Gill. Champ. Fr. *pl. 330 (230)*.

145. **Cortinarius bulbosus** Fries, Epicr. Myc. 292. 1838.

Pileus fleshy, at first oval-subhemispheric, then campanulate-expanded, broadly subumbonate, obtuse, 5–7(–8) cm. broad; surface even, covered by a thin, webby, appressed, superficial white silkiness, light-ochraceous-salmon (R) to dingy-ochraceous-salmon (R), more or less variegated with wood-brown (R), especially on the umbo or disk; margin at first involute, at length broadly decurved, thin and whitened by the veil; context compact on the disk, brittle in age, concolorous when moist, soon whitish, the odor and taste earthy, scarcely subnauseous; lamellae adnate, sometimes emarginate or with a decurrent tooth, rather close, distinct, varying from moderately narrow to quite broad in large plants, at very first light-ochraceous-buff (R), soon tawny (R) or darker in age, never with violaceous tints, the edge entire; stipe clavate-bulbous, 5–7 cm. long, 10–18(–26) mm. thick above the large bulb, solid, tapering upward, paler than the pileus, at first covered by silky interwoven white fibrils, sometimes subperonate, at length sordid and superficially fibrillose-silky, corticated, concolorous within; spores short-ellipsoid, scarcely rough, 7–8(–9) × 4.5–5.5(–6) μ.

TYPE LOCALITY: Sweden.
HABITAT: Under maple, birch, and conifers, in mixed forests.
DISTRIBUTION: Adirondack Mountains, New York; Cascade Mountains, Oregon and Washington; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 834 (790);* Ricken, Blätterp. Deutschl. *pl. 50, f. 2*.

146. **Cortinarius Morrisii** Peck, Bull. Torrey Club **32**: 79. 1905.

Pileus fleshy, convex, then campanulate-expanded, 3–10 cm. broad; surface hygrophanous, dark-ochraceous or tawny-ochraceous, covered with minute, silky fibrils, radially rugose at times; margin wavy or irregular; context thin except on the disk, yellowish, the odor slightly that of radish; lamellae adnate, then emarginate-adnexed, rounded behind, broad, subdistant, yellow at first, then rusty-cinnamon, the edge eroded; stipe equal or subequal, 6–10 cm. long, 8–20 mm. thick, stout, solid, fibrous-fleshy, yellow within, whitish or pale-yellow above, yellow to ochraceous and becoming ferruginous to blackish-umber below, imperfectly annulate by adnate shreds of the yellowish universal veil; spores oval or broadly ellipsoid, slightly rough, with an oil-globule, 7–9 × 5.5–6 μ (rarely up to 10 × 7 μ).

TYPE LOCALITY: Ellis, Massachusetts.
HABITAT: On the ground, in coniferous or mixed woods.
DISTRIBUTION: New England.

147. **Cortinarius gentilis** Fries, Epicr. Myc. 297. 1838.

Pileus slightly fleshy, conic-campanulate at the very first, then campanulate and subexpanded or repand in age, usually abruptly umbonate, sometimes obtuse, the umbo small and

acute, or prominent and more or less obtuse, 2–5 cm. broad; surface entirely glabrous when moist, silky-shining when dry, hygrophanous, Sudan-brown (R) to cinnamon-rufous (R) when moist, changing markedly on losing moisture and becoming wax-yellow (R) to amber-yellow (R) or paler, even; margin at first incurved and silky-cortinate or spotted by the yellowish shreds of the veil; context thin and equal except the umbo, scissile, hygrophanous, concolorous, fading, the odor none or slightly radishy, the taste mild; lamellae broadly adnate, 6–9 mm. broad, subdistant at first, finally very distant, thick and venose-connected, cinnamon (R) at first, then darker, antique-brown (R), the edge flocculose; stipe 5–9(–10) cm. long, 3–5(–7) mm. thick, strict at first, then flexuous and undulate, equal or tapering upward or downward, sometimes subradicating, slender, stuffed, then hollow, the cortex cartilaginous, naked at the apex, fibrillose-silky elsewhere, cingulate in the middle or zoned with amber-yellow (R) zones, antique-brown (R) when moist, concolorous within; universal veil thin, interwoven, yellowish to yellow-ocher; spores broadly ellipsoid, slightly rough, 8–9(–10) × 6–7 μ, yellow under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: On deep moss or debris, under spruce and fir, in the higher mountains.
DISTRIBUTION: Colorado; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 159, f. 2;* Cooke, Brit. Fungi *pl. 806 (804);* Grevillea *pl. 84, f. 3;* Ricken, Blätterp. Deutschl. *pl. 48, f. 4.*

148. **Cortinarius distans** Peck, Ann. Rep. N. Y. State Cab. 23: 111. 1872.

Cortinarius furfurellus Peck, Ann. Rep. N. Y. State Mus. **32**: 31. 1880.

Pileus fleshy, campanulate, sometimes obtusely conic at first, then campanulate-expanded umbonate, 2–5 cm. broad; surface minutely furfuraceous-scaly, hygrophanous, watery-cinnamon to bay-brown when moist, tawny or subferruginous when dry; margin usually deflexed, even, often splitting radially; context thin, brittle, sordid, brown, then dull-yellowish, the odor sometimes slightly that of radish, the taste mild; lamellae adnate, then sinuate, distant, broad, rigid, thick, brownish or tawny-yellow at first, then dark-cinnamon; stipe variously thickened to equal, 4–8 cm. long, 5–12 mm. thick, often attenuate below and curved, stuffed, fibrillose, watery-brown and unicolorous when moist, the universal veil at first concolorous but on breaking up leaving a whitish, median, somewhat persistent annular zone; cortina whitish, fibrillose; spores ovoid, rough-tuberculate, 6–8 × 5–6 μ.

TYPE LOCALITY: Greenbush, New York.
HABITAT: On grassy ground, in frondose and coniferous woods.
DISTRIBUTION: New England to Virginia, Minnesota, and Missouri.
ILLUSTRATION: C. H. Kauffman, Agar. Mich. *pl. 88.*

149. **Cortinarius hinnuleus** Fries, Epicr. Myc. 296. 1838.

Pileus fleshy, campanulate at first, then expanded and recurved, subumbonate, 3–6 cm. broad; surface rusty-ochraceous or yellowish-tawny, variegated with rusty stains in age, very hygrophanous, paler when dry, glabrous; context thin, watery-soft, fragile when fresh, the odor none; lamellae adnate-emarginate, broad, subdistant, pale-yellowish-fulvous at first, stained rusty in age, the edge minutely lacerate; stipe 5–7 cm. long, 4–7 mm. thick, rather slender, unequal, soft and fragile, easily split longitudinally, stuffed, curved, yellowish-pallid becoming dingy, glabrescent, cingulate when fresh by a white zone about the middle; spores broadly ellipsoid, scarcely rough, 7–9.5 × 5–6 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in woods, among decayed debris.
DISTRIBUTION: Michigan; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 805 (803);* Gill. Champ. Fr. *pl. 334 (227);* Pat. Tab. Fung. *f. 648;* Ricken, Blätterp. Deutschl. *pl. 48, f. 3.*

150. **Cortinarius mammosus** C. H. Kauffman, Agar. Mich. 1: 415. 1918.

Pileus fleshy, conic-campanulate at first, then expanded and obtusely umbonate, 2–8 cm. (mostly 4–6 cm.) broad; surface hygrophanous, fawn-colored to brownish-cinnamon, scarcely

tinged with olivaceous, subferruginous on the umbo when dry, beautifully silky-shining, glabrescent; context thin except on the disk, concolorous when moist, pallid when dry; lamellae adnate, becoming emarginate, subventricose, moderately broad, close to somewhat subdistant, at first pallid with a tinge of fawn color, then pale-cinnamon-umber, the edge even; stipe 5–9 cm. long, 5–8 mm. thick, tapering upward from a subclavate base or almost equal, pale-brownish, paler above, subannulate or with thin, concentric, fawn-colored zones from the universal veil, sometimes abruptly pointed below, stuffed; spores broadly ellipsoid, obtuse, slightly rough, 7–8.5 × 5–6 μ.

TYPE LOCALITY: Chelsea, Michigan.
HABITAT: Among mosses and debris, in sphagnum swamps.
DISTRIBUTION: Michigan.

151. **Cortinarius scutulatus** Fries, Epicr. Myc. 294. 1838.

Agaricus scutulatus Fries, Syst. Myc. 1: 211. 1821.

Pileus fleshy, at first subhemispheric and sometimes gibbous, then campanulate, firm, brittle, 2–4 cm. broad; surface hygrophanous, dark-purplish-chestnut or smoky-violet-umber, unicolorous, becoming canescent with grayish-white innate fibrils, the inflexed margin at first silky; context concolorous under the cuticle, soon whitish elsewhere, the odor none; lamellae adnate, then emarginate, rather broad, subdistant, thickish and rigid, at first pale-smoky-purple, then dark-rusty-umber; stipe equal or subattenuate below, rather stout, 3–7 cm. long, 4–10 mm. thick, sometimes slender, rigid, thinly peronate at first by the grayish-white or purple-tinged universal veil, soon subannulate by the breaking up of the veil, at length silky-fibrillose, solid; cortina whitish; spores short, ellipsoid, almost smooth, 7–8 × 4–4.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On sandy ground, in woods.
DISTRIBUTION: Michigan; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 158;* Cooke, Brit. Fungi *pl. 820a (796);* Gill. Champ. Fr. *pl. 331 (249);* Ricken, Blätterp. Deutschl. *pl. 49, f. 1.*

152. **Cortinarius adustus** Peck, Ann. Rep. N. Y. State Mus. 42: 118. 1889.

Pileus broadly campanulate or convex, obtuse, 2–3.5 cm. broad; surface hygrophanous, bay-brown when moist, sometimes canescent on the margin, paler when dry, smoky-brown with age and generally rimose-scaly; context yellowish-gray; lamellae subfree, rather thick, distant, purplish-brown; stipe equal, 2–8 cm. long, 6–10 mm. thick, stuffed or hollow, fibrillose, brownish with a white mycelioid coating at the base, colored within like the flesh of the pileus; spores broadly ellipsoid, 8–10 × 5.5–6.5 μ.

TYPE LOCALITY: North Elba, Adirondack Mountains, New York.
HABITAT: On the ground, in coniferous forests.
DISTRIBUTION: Known only from the type locality.

153. **Cortinarius periscelis** Fries, Epicr. Myc. 300. 1838.

Pileus fleshy on umbo, submembranous on the margin, rather firm, campanulate-convex, umbonate, the umbo obtuse, 2–5 cm. broad; surface at first dusky-drab (R), hygrophanous, fading to light-buff (R), silky, especially on the margin, even; margin decurved; context thick on the disk, at first grayish-lavender (R), fading, the odor slight, the taste mild; lamellae adnexed, rounded behind, at length emarginate, close, narrow to moderately broad, thickish, at first vinaceous-brown (R), finally russet (R), the edge entire; stipe equal, 4–8 cm. long, 4–5 mm. thick, at first dark-grayish-lavender (R), then paler, stuffed, then hollow, concolorous within, silky-fibrillose from the delicate universal veil, the veil turning brownish or subfuscous; cortina pale-grayish-lavender (R); spores ellipsoid, smooth, 9–10 × 5–5.5 μ, pale-subcinnamon under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: In mossy cedar swamps.
DISTRIBUTION: Adirondack Mountains, New York; also in Europe.
ILLUSTRATION: Cooke, Brit. Fungi *pl. 838 (816).*

154. **Cortinarius subflexipes** Peck, Ann. Rep. N. Y. State Mus. **41**: 73. 1888.

Pileus slightly fleshy, conic, then campanulate and subacutely umbonate, 1–2 cm. broad; surface glabrous, hygrophanous, blackish-brown and the thin margin incurved and whitened by the veil when moist, subochraceous when dry; context concolorous, thin; lamellae adnexed, thin, close, rather broad, ventricose, at first clay-colored and violaceous-tinged, then cinnamon; stipe equal, 3–6 cm. long, 2–4 mm. thick, slender, flexuous, silky-shining, violaceous within, subannulate by the whitish universal veil, pale-violaceous when young, especially above the annulus, pallid or reddish when old; spores narrowly ellipsoid, scarcely rough, 6–7.5 × 3.5–4 μ.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On the ground, in mixed forests.
DISTRIBUTION: New York.

155. **Cortinarius flexipes** Fries, Epicr. Myc. 300. 1838.

Agaricus flexipes Fries, Syst. Myc. **1**: 212. 1821.

Pileus slightly fleshy, at first conic, then conic-campanulate, 1–3 cm. broad; surface hygrophanous, the ground-color cinnamon-brown, densely covered with shining grayish-white subagglutinate fibrillose scales up to the apex of the acute umbo, the scales small, superficial and easily rubbed off; context at the very first violaceous, soon pallid or brownish, the odor and taste mild; lamellae adnate-emarginate, at first or when moist walnut-brown (R) with a purplish tint, soon Sudan-brown (R), broad, close to subdistant, the edge entire, at first whitish; stipe at first strict, then flexuous, 3.5–5 cm. long, 2–4 mm. thick, stuffed, then hollow, dark-violaceous at the apex, soon grayish-brown, annulate by a distinct white annulus above the middle, concentrically subannulate below with white flecks, at first violet within; spores ellipsoid, slightly rough, 7–7.5 × 4–5 μ, pale-ochraceous.

TYPE LOCALITY: Sweden.
HABITAT: Among mosses, in coniferous swamps.
DISTRIBUTION: Adirondack Mountains, New York; also in Europe.
ILLUSTRATIONS: Grevillea *pl. 113, f. 3;* Ricken, Blätterp. Deutschl. *pl. 49, f. 4.*

156. **Cortinarius nigrellus** Peck, Ann. Rep. N. Y. State Mus. **26**: 62. 1874.

Pileus at first conic, soon convex or expanded, umbonate or subumbonate, 2–5 cm. broad; surface minutely silky, hygrophanous, walnut-brown (R) when moist, paler when dry, the odor and taste mild; lamellae close, somewhat narrow, adnate, then emarginate, pinkish-buff (R) at first, then clay-colored (R); stipe equal or subequal, 5–7 cm. long, 4–8 mm. thick, silky-fibrillose from white fibrils, sometimes annulate from the white veil, often flexuous, stuffed; spores minute, inequilateral, smooth, 6–7 × 3–3.5 μ.

TYPE LOCALITY: New Scotland, New York.
HABITAT: Among mosses, in coniferous forests.
DISTRIBUTION: New York.

157. **Cortinarius punctatus** Fries, Epicr. Myc. 299. 1838.

Pileus slightly fleshy, campanulate-convex, umbonate or subumbonate, 2–5 cm. broad; surface glabrous, even, punctate, hygrophanous, vandyke-brown (R) when moist, fading to cinnamon-buff (R); context thin and equal except at the umbo, concolorous, the odor none; lamellae broadly adnate, rather broad, thick, distant, cinnamon at first, then hazel (R) to vandyke-brown (R), the edge entire; stipe equal or slightly enlarged toward base, 5–7 cm. long, 3–6 mm. thick, concolorous or paler, fuscescent, becoming darker downward, innately fibrillose-silky, stuffed, fuscescent within, white-mycelioid at base; cortina pallid, fuscescent, evanescent; universal veil thin, fuscescent, more or less obsolete; spores broadly ellipsoid or subovoid, coarsely tuberculate, 10–12(–13) × 6–8(–9) μ, dark-rusty-brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under spruce and firs, in mountain forests.
DISTRIBUTION: Colorado; also in Europe.

158. **Cortinarius glandicolor** Fries, Epicr. Myc. 298. 1838.

Pileus subfleshy to submembranaceous, at first ovoid to conic-campanulate, then convex-campanulate, subexpanded, with a mammillate or subacute umbo, 2–5 cm. broad; surface glabrous, hygrophanous, Prout-brown (R) to chestnut-brown (R) when moist, cinnamon (R) to ochraceous-buff (R) when dry, becoming blackish-stained or entirely dark-fuscous in age; margin at first incurved and white-silky from veil; context thin, concolorous, hygrophanous, scissile, the odor and taste none or slight; lamellae adnate, subdistant to distant, thickish, 5–8 mm. broad, at first cinnamon, then umber, the edge entire; stipe equal or subequal, 4–8 cm. long, 4–8 mm. thick, sometimes subclavate or abruptly attenuate at the base, soon hollow, naked above, whitish at first, soon fuscescent, zoned by shreds from the whitish universal veil, or with a subannular single zone above middle; spores broadly ellipsoid, tuberculate, 8–10 × 5–6 μ, dark-brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: On mosses and debris, under fir trees, in higher mountains.
DISTRIBUTION: New York to Michigan; Colorado; Washington; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 789* (*812*); Ricken, Blätterp. Deutschl. *pl. 50, f. 3.*

159. **Cortinarius bistreoides** C. H. Kauffman, Papers Mich. Acad. 1: 129. 1923.

Pileus submembranaceous, fragile, at first conic-campanulate, then expanded-plane or repand on the margin, and usually with a subacute umbo, 2–4 cm. broad; surface glabrous, silky-shining when dry, even, mummy-brown (R) when moist, ochraceous-buff (R) on drying, the umbo at length bister (R) and finally tinged with bister color elsewhere; margin at first very thin, at first with delicate white silkiness, at length incised and frequently crenate-furrowed; context concolorous, hygrophanous, quite thin, the odor slight, radishy-earthy, the taste mild; lamellae adnate, often sinuate, strongly ventricose, broad, definitely subdistant, pallid-brownish at first, then tawny (R), the edge white-flocculose; stipe slender, equal, 4–6 cm. long, 2–4 mm. thick, somewhat rigid-elastic, straight or flexuous, solid, innately silky-fibrillose and shining when dry, at length slowly fuscescent, somewhat incarnate-brownish within, scarcely marked by remnants of the whitish universal veil; spores ellipsoid, distinctly tuberculate when mature, 10–12 × 5–6(–7) μ, dark-rusty-brown under the microscope.

TYPE LOCALITY: Leal, Colorado.
HABITAT: Under spruce and fir, in mountain forests.
DISTRIBUTION: Colorado.

160. **Cortinarius iliopodius** Fries, Epicr. Myc. 301. 1838.

Agaricus iliopodius Fries, Syst. Myc. 1: 231. 1821.

Pileus campanulate-subexpanded, mammillate, 2–3 cm. broad; surface hygrophanous sorghum-brown (R), the umbo blackish when moist, avellaneous (R) when dry and then canescent-fibrillose and silky-shining; margin at first incurved and white-silky from the veil; context thin, scissile, brownish when moist, then pallid, the odor and taste mild; lamellae pallid at first, then cinnamon (R), thin, adnate, rounded behind, ventricose, rather broad, close to subdistant; stipe slender, elongate, equal, 5–9 cm. long, 3–4 mm. thick, stuffed, at length flexuous, decorated by the delicate white silky remnants of the veil, pale-incarnate, fuscescent, the context fuscous-brown or ochraceous toward base, the cortex cartilaginous; spores ellipsoid, slightly rough, 10–12 × 5–6 μ.

TYPE LOCALITY: Sweden.
HABITAT: On sphagnum, in coniferous forests.
DISTRIBUTION: Adirondack Mountains, New York; also in Europe.
ILLUSTRATION: Cooke, Brit. Fungi *pl. 839b* (*818*).

161. **Cortinarius gracilis** Peck; Sacc. Syll. Fung. 9: 133. 1891.

Telamonia gracilis Peck, Bull. N. Y. State Mus. 1[2]: 8. 1888.

Pileus fleshy, convex or campanulate, then expanded, umbonate, 1–2.5 cm. broad; surface hygrophanous, floccose-fibrillose, brown or sordid-chestnut when moist, the margin gray-

fibrillose, subochraceous or fuscous-cinnamon when dry; context thin; lamellae thin, subdistant, subventricose, ferruginous-brownish, then cinnamon; stipe long, graceful, 5–10 cm. long, 2–4 mm. thick, flexuous, fibrillose, slightly floccose-scaly, with a thin, white, evanescent, concolorous annulus; spores ellipsoid, regular, 8–10 × 5–6 μ.

TYPE LOCALITY: Sandlake, New York.
HABITAT: In moss and sphagnum, in swamps.
DISTRIBUTION: New York.

162. **Cortinarius badius** Peck, Ann. Rep. N. Y. State Mus. **41**: 73. 1888.

Pileus fleshy, varying from conic to campanulate-convex, umbonate, 1–2.5 cm. broad; surface hygrophanous, blackish-chestnut-colored when moist, bay-red or chestnut when dry, sometimes gray-tinged, the umbo darker, usually whitish-silky on the margin when young; context concolorous when moist, thin; lamellae broad, subdistant, ventricose, adnexed, at first yellowish or cream-colored, then subochraceous; stipe slender, equal, 2–4 cm. long, about 2 mm. thick, hollow, silky-fibrillose and subannulate by the whitish veil, concolorous within and without; spores large, broadly ellipsoid, scarcely rough, 11–12.5 × 6.5–7.5 μ.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On moist ground, in moss or sphagnum, in coniferous or mixed forests.
DISTRIBUTION: New England and Canada to Tennessee; Washington and Oregon.
ILLUSTRATION: C. H. Kauffman, Agar. Mich. *pl. 87*.

163. **Cortinarius impolitus** C. H. Kauffman, Agar. Mich. **1**: 419. 1918.

Pileus slightly fleshy, small, firm, conic-campanulate, then expanded, obsoletely umbonate, obtuse, 8–20 mm. broad; surface minutely fibrillose-scaly, the fibrils often dense at first, hygrophanous, umber to chestnut-cinnamon at first, becoming pale-fawn or sometimes rufous-ochraceous, silky on the decurved margin, even; context thin, concolorous, the odor and taste none; lamellae adnate, relatively broad, subdistant, thickish, at first whitish or pallid, then cinnamon, the edge entire; stipe slender, equal, 2–2.5 cm. long, 1–3 mm. thick, stuffed, brownish or fuscescent, annulate about the middle by a floccose, subpersistent, whitish ring, silky-fibrillose; cortina dingy-whitish; spores narrow-subfusiform, subacute at the ends, smooth, 9–10 × 4–4.5 μ.

TYPE LOCALITY: New Richmond, Michigan.
HABITAT: On mossy, sandy soil, in pine and beech woods.
DISTRIBUTION: Known only from the type locality.

164. **Cortinarius castaneoides** Peck, Ann. Rep. N. Y. State Cab. **23**: 111. 1872.

Pileus fleshy, campanulate-convex, then expanded, 1–2 cm. broad; surface chestnut-brown to dark-watery-cinnamon, brownish-ochraceous when dry, subumbonate and usually darker on the center, hygrophanous, scarcely silky with a few superficial fibrils, even, the margin sometimes whitish from the veil; context thin, watery-brownish, then pallid, the odor and taste none; lamellae adnate, then emarginate, rather broad, subdistant, yellowish at first, then yellowish-cinnamon to dark-cinnamon, the edge almost entire; stipe equal, slender, 2–5 cm. long, 1.5–3 mm. thick, stuffed, then hollow, subflexuous, pallid, annulate from the cortina and the fugacious universal veil which remains as delicate subannular shreds on the stipe below; spores ellipsoid, smooth, 6–7.5 × 3.5–4.5 μ.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On mossy ground, in low frondose or coniferous woods.
DISTRIBUTION: New England to Michigan.
ILLUSTRATION: Ann. Rep. N. Y. State Cab. **23**: *pl. 4, f. 10–15*.

165. **Cortinarius incisus** Fries, Epicr. Myc. 301. 1838.

Agaricus incisus Fries, Syst. Myc. 1: 213. 1821.

Pileus slightly fleshy, campanulate-convex, subumbonate, the umbo varying from acute to obtuse, 2–5 cm. broad; surface snuff-brown (R) to cinnamon-rufous (R), glabrous, at length minutely lacerate-scaly, especially toward the margin, non-striate, hygrophanous; margin at first incurved; context thin, concolorous, then pallid; lamellae adnate, then sinuate, subdistant, the shorter ones narrower, moderately broad, cinnamon, then ferruginous, the edge entire; stipe usually short, sometimes elongate, 3–6 cm. long, 2–5 mm. thick, equal, stuffed, then hollow, straight or flexuous, glabrous above, fibrillose downward, sayal-brown (R) within and without, fulvescent, marked by white on the lower half from the veil; spores broadly ellipsoid, 7–8.5(–9) × 5–6 μ, almost smooth, pale-rusty under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under conifers, in mountains.
DISTRIBUTION: Colorado; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 807 (819)*; Fries, Ic. Hymen. *pl. 160, f. 1.*

166. **Cortinarius rigidus** Fries, Epicr. Myc. 302. 1838.

Pileus slightly fleshy, conic or conic-campanulate, then acutely or obtusely umbonate and expanded, 2–4 cm. broad; surface glabrous, even, hygrophanous, at very first bone-brown (R), then varying from army-brown (R) to argus-brown (R) fading to avellaneous (R) or ochraceous-buff (R), sometimes minutely scaly-cracked, white-silky on the margin from the veil; context thin, concolorous, fading, scissile, the odor more or less marked; lamellae adnate, at length sinuate with a decurrent tooth, close, noticeably broad, thick, often transversely wrinkled, at first cinnamon-brown (R), then tawny-ochraceous (R); stipe equal, 4–7 cm. long, 3–5 mm. thick, stuffed but soon hollow, varying from short and rigid to longer and flexuous, of the same color as the pileus within and without, but decorated upward to above the middle by appressed, fibrillose, white, concentric zones from the universal veil, pallescent at the apex, white-mycelioid at base; spores broadly ellipsoid, obtuse, minutely but distinctly tuberculate, 7–9 × 5–5.5(–6) μ, dark-rusty-brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: On mossy ground, along streams, in coniferous forests.
DISTRIBUTION: Colorado to Washington and Oregon; also in Europe.
ILLUSTRATION: Cooke, Brit. Fungi *pl. 791 (822)*.

167. **Cortinarius paludosus** Peck, Ann. Rep. N. Y. State Mus. **43**: 65. 1890.

Pileus fleshy, conic or convex, 2–4 cm. broad; surface ferruginous when moist, buff-yellow or pale-ochraceous when dry, hygrophanous; context yellowish; lamellae broad, subdistant, adnate, saffron-yellow; stipe equal, 5–8 cm. long, 4 mm. thick, flexuous, solid, peronate and subannulate by the fibrillose yellow universal veil; spores 7.5–9 × 5 μ.

TYPE LOCALITY: Rainbow, New York.
HABITAT: Mossy ground, in swamps.
DISTRIBUTION: Known only from the type locality.

168. **Cortinarius hemitrichus** Fries, Epicr. Myc. 302. 1838.

Pileus fleshy, campanulate, umbonate, the umbo sometimes obsolete, when present varying from acute to obtuse, 2–5 cm. broad (rarely larger); surface watery-cinnamon when moist, the ground-color umber, hygrophanous, more or less canescent from the white, superficial, cirrate fibrils which at first cover it, sometimes glabrescent in age, the color fading to ochraceous-tan when dry; margin persistently white-silky; context concolorous, thin, the odor and taste mild; lamellae adnate, then emarginate, broad, close in front, subdistant behind, at first brownish-gray to subochraceous, at length dark-cinnamon, the edge erose-crenulate; stipe equal, 3–6 cm. long, 2–5 mm. thick, hollow, rigid, more or less annulate at or below the middle by a white,

appressed ring, watery-fuscous-brown within, fuscescent or brownish-fuscous without, fibrillose below the annulus; spores ellipsoid, smooth, 6–8 × 4–5 μ (rarely 9 × 5.5 μ).

TYPE LOCALITY: Sweden.
HABITAT: Swampy woods or low places, among thickets.
DISTRIBUTION: New England to Tennessee and Wisconsin; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 825 (820)*; Fries, Ic. Hymen. *pl. 160, f. 2*; Gill. Champ. Fr. *pl. 338 (226)*; Ricken, Blätterp. Deutschl. *pl. 49, f. 5*.

169. **Cortinarius paleaceus** Fries, Epicr. Myc. 302. 1838.

Pileus slightly fleshy, conic-expanded, often pointed-conic, sometimes obtuse, 2–3 cm. broad; surface fuscous, fading, hygrophanous, opaque, silky with cirrate, loose, superficial, white fibrils, glabrescent; context thin, submembranous, concolorous, mild; lamellae broad, crowded, at first pallid, then fuscous-cinnamon; stipe 4–7 cm. long, 2–4 mm. thick, slender, undulate, slightly tough, hollow, fuscescent within and without, minutely flocculose-scaly, with a white zone at the apex, white-floccose-hairy at base; spores ellipsoid, smooth, 6–8 × 4–5 μ.

TYPE LOCALITY: Sweden.
HABITAT: In moist places, in thickets or coniferous and frondose woods.
DISTRIBUTION: New England to Wisconsin and southward; Colorado; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 106, f. 4*; Gill. Champ. Fr. *pl. 337 (241)*; Cooke, Brit. Fungi *pl. 826 (823)*; C. H. Kauffman, Agar. Mich. *pl. 89*.

170. **Cortinarius nigrocuspidatus** C. H. Kauffman, Papers Mich. Acad. 1: 138. 1923.

Pileus submembranous or slightly fleshy, at first conic-campanulate, then campanulate with a black and obtusely conic prominent umbo, or mammillate, 2–3.5(–4.5) cm. broad; surface innately silky-fibrillose, silky-shining when dry, even, sepia (R) or army-brown (R), fading to wood-brown or paler, the umbo darker, hygrophanous; margin at first decorated by narrow shreds of the white universal veil; context thin, concolorous, hygrophanous, fading, the odor and taste mild or slightly of radish; lamellae adnate, then emarginate with decurrent teeth, subdistant, rather broad, ventricose, somewhat wrinkled on surfaces, at first pallid-brownish, then cinnamon (R) to tawny-cinnamon (R); stipe slender, elastic, equal, 4–6 cm. long, 3–5 mm. thick, flexuous, stuffed, of the same color as the pileus within, subfuscescent, unequally zoned downward by the silky and white remnants of the delicate universal veil, sometimes with only an annular median zone, slightly fuscescent in age; spores short-ellipsoid to suboval, obtuse, minutely and indistinctly rough, 8–9(–10) × 5–6 μ, rusty-brownish under the microscope.

TYPE LOCALITY: Leal, Colorado.
HABITAT: Under spruce and fir, in mountain forests.
DISTRIBUTION: Colorado.

171. **Cortinarius livor** Fries, Epicr. Myc. 306. 1838.

Pileus firm, campanulate, obtuse, sometimes gibbous, 3–4 cm. broad; surface sooty-brown, obscurely olive-gray on the center, innately subtomentose, scarcely hygrophanous, not fading, even, the margin at first incurved; context thickish on the disk, sooty-brown under the center, pallid or whitish elsewhere, the odor slight; lamellae adnate, then emarginate, close, relatively broad, pallid-cinnamon at first; stipe subequal, sometimes more narrow at the base, 4–5 cm. long, 4–7 mm. thick, sometimes subbulbous, slightly violaceous above, becoming dingy-olivaceous to brownish below, solid, firm, at first violaceous within; spores broadly ellipsoid, obtuse, slightly rough, 7–8 × 5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in mixed woods.
DISTRIBUTION: Michigan; also in Europe.

172. **Cortinarius ferrugineo-griseus** Peck, Bull. N. Y. State Mus. 139: 46. 1910.

Pileus fleshy, convex or nearly plane, sometimes repand and centrally depressed, 3.5–10 cm. broad; surface hygrophanous, brownish-ferruginous when moist, gray or whitish-gray on

losing moisture; context whitish; lamellae adnexed, moderately close, 8–12 mm. broad, at first pale-cinnamon or clay-colored, at length brownish-cinnamon; stipe equal above the abruptly bulbous base, 3.5–8.5 cm. long, 6–20 mm. thick, solid or stuffed, silky-fibrillose, sometimes shining, concolorous but paler, the color variable, whitish below and violaceous-tinged above, or entirely violaceous, violaceous within; spores ellipsoid, 10–12 × 7–8 μ.

TYPE LOCALITY: Natick, Massachusetts.
HABITAT: Under pine trees, in swamps.
DISTRIBUTION: Known only from the type locality.
ILLUSTRATIONS: Bull. N. Y. State Mus. 139: *pl. Y, f. 1–4; pl. Z, f. 1–3.*

173. **Cortinarius saturninus** Fries, Epicr. Myc. 306. 1838.

Agaricus saturninus Fries, Syst. Myc. 1: 219. 1821.

Pileus fleshy, campanulate, expanded, sometimes gibbous, 3–8 cm. broad; surface glabrous, hygrophanous, pale-watery-brown when moist, ochraceous-gray-buff when dry, silky around the margin; context thin, scissile, violaceous, then pallid, the odor and taste mild; lamellae adnate, then emarginate, adnexed, close, moderately broad, violaceous or purplish-tinged at first, then ashy-cinnamon, thin, the edge entire; stipe subequal, slightly thicker downward, 4–6 cm. long, 6–12 mm. thick, terete or compressed, stuffed, violaceous above, whitish below, fibrillose, glabrescent and shining when dry; cortina whitish; spores ellipsoid, slightly rough, 7–8 × 5–6 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in frondose and coniferous forests.
DISTRIBUTION: New York to Michigan; Colorado; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 161, f. 2;* Gill. Champ. Fr. *pl. 247.*

174. **Cortinarius privignus** Fries, Epicr. Myc. 304. 1838.

Agaricus privignus Fries, Obs. Myc. 2: 72. 1818.

Pileus fleshy, gibbous, campanulate-convex, obtuse or broadly umbonate, 4–7 cm. broad; surface hygrophanous, walnut-brown (R) to deep-brownish-drab (R), innately variegated-micaceous-silky, paler and with a tinge of drab when dry, glabrous, even; margin at first incurved and white-silky, at length splitting radially; context thin except the disk, concolorous to pallid; lamellae adnate-emarginate, rather broad, ventricose, not crowded, brownish, at first Mikado-brown (R), then cinnamon-umber, the edge concolorous; stipe equal or subequal, 4–7 cm. long, 7–10 cm. thick, sometimes with a clavate thickened base, sometimes subattenuate at the base, pallid with a tinge of drab, sordid-white within, at length subfuscescent at base, at first covered by silky-white fibrils, shining when dry, glabrous, even, not cingulate, stuffed, then hollow; spores broadly ellipsoid, obtuse, almost smooth, 8–9 × 5–6 μ.

TYPE LOCALITY: Sweden.
HABITAT: Under pine, fir, and hemlock, usually in mountain forests.
DISTRIBUTION: New York to Tennessee and Michigan; Washington; also in Europe.

175. **Cortinarius illuminus** Fries, Epicr. Myc. 305. 1838.

Pileus slightly fleshy, campanulate-expanded, obtusely subumbonate, with a rigid cuticle, 3–5(–7) cm. broad; surface glabrous, even, sometimes rimose-subareolate in wet weather, subhygrophanous, chestnut-brown (R) to cinnamon-rufous (R) and silky-shining when moist, fading slowly, finally cinnamon-buff (R), or at times scarcely faded; margin at first incurved and whitish-silky from the whitish fibrillose cortina, soon spreading; context concolorous, scarcely fading, rigid-brittle, thin except the disk, the odor that of radish, but not strong; lamellae adnexed-emarginate, close, 4–6 mm. broad, thickish, wrinkled on the sides, cinnamon-rufous (R) to terra-cotta (R), becoming darker, the edge crenulate; stipe tapering upward, 6–10 cm. long, 5–10 mm. thick, short-attenuate and curved below the thickest part, stuffed, then hollow, soft at base, white when fresh, then sordid-streaked, white-mycelioid toward base; spores oval-ellipsoid, almost smooth, 7–8(–9) × 5–5.5 μ, pale-brownish under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under spruce, fir, and pine, in higher mountains.
DISTRIBUTION: Colorado; also in Europe.
ILLUSTRATION: Cooke, Brit. Fungi *pl. 841* (*830*).

176. **Cortinarius duracinus** Fries, Epicr. Myc. 304. 1838.

Pileus convex, then expanded, obtuse, sometimes gibbous, 4–10 cm. broad; surface hygrophanous, watery-cinnamon-brown when moist, rufous-tinged on the disk, pale-ochraceous-tan to buff when dry, glabrous, even; margin at first incurved, then geniculate and obsoletely silky; context rigid-brittle, then scissile, concolorous, at length pallid, the odor and taste mild; lamellae adnate or slightly subdecurrent, thin, subdistant, moderately broad, pallid at first but soon watery-cinnamon, the edge even or scarcely crenulate; stipe tapering downward or fusiform-subradicate, 4–12 cm. long, 6–15 mm. thick, glabrous, rigid, stuffed, then hollow, sometimes compressed, at length shining, white, at first cortinate-fibrillose; cortina white; spores ellipsoid, almond-shaped, scarcely rough, 7–9.5 × 5–5.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in frondose or mixed woods.
DISTRIBUTION: New York to Michigan, and southward to North Carolina; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 809 (829);* Ricken, Blätterp. Deutschl. *pl. 51, f. 2;* Grevillea *pl. 115, f. 1.*

177. **Cortinarius dilutus** Fries, Epicr. Myc. 305. 1838.

Agaricus dilutus Fries, Syst. Myc. 1: 235. 1821.

Pileus subfleshy, convex, then expanded, finally irregular, 3–5 cm. broad; surface glabrous, hygrophanous, opaque, chestnut-brown (R) and even on the margin when moist, losing moisture first on the disk and fading at first to rufous (R) or ferruginous (R), finally cinnamon-buff (R); margin at first incurved and white-cortinate; context thin, soft, very thin on margin, concolorous, fading, the odor and taste mild; lamellae adnate, then emarginate, close, up to 10 mm. broad, often crisped, at first pale-cinnamon, then tawny (R); stipe subequal or tapering upward, 4–6 cm. long, 5–10 mm. thick, soft and spongy within, at first covered by the rather copious, white-silky cortina, rarely obsoletely cingulate, glabrescent, whitish; spores globose, slightly rough, 6–7 × 6 μ, pale, subochraceous under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under pines, in mountains.
DISTRIBUTION: Adirondack Mountains, New York; Rocky Mountains, Colorado; Olympic Mountains, Washington; Mount Hood, Oregon; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 810 (832);* Grevillea *pl. 85, f. 2;* Ricken, Blätterp. Deutschl. *pl. 52, f. 1.*

178. **Cortinarius regularis** Peck, Ann. Rep. N. Y. State Mus. 30: 43. 1878.

Pileus fleshy, convex, then expanded, 2.5–5 cm. broad; surface hygrophanous, glabrous, watery-brown when moist, reddish-ochraceous when dry, often slightly radiate-rugulose; context whitish, becoming white when dry; lamellae close, slightly violaceous when young; stipe long, nearly straight, 7–12 cm. long, 2–4 mm. thick, stuffed, slightly tapering upward, silky-fibrillose, white; spores ellipsoid, 9–10 × 5–6 μ.

TYPE LOCALITY: Center, New York.
HABITAT: In a sphagnous marsh.
DISTRIBUTION: Known only from the type locality.

179. **Cortinarius glabrellus** C. H. Kauffman, Jour. Myc. 13: 35. 1907.

Pileus hemispheric-convex at first, campanulate-expanded, obtuse or broadly umbonate, 5–10 cm. broad; surface glabrous, hygrophanous, with a slight pellicle, watery-cinnamon when moist, becoming brick-colored on drying, then paler, even; margin at first incurved and white-silky; context concolorous, then pallid, rather thin, the odor and taste slightly of radish; lamellae adnate, moderately broad, broadest behind, close, distinct, thin, at first brownish-pallid, then cinnamon-brown; stipe varying from equal to subclavate below, 4–8 cm. long, 8–18 mm. thick, rather stout and firm, straight or curved at base, pallid or whitish, silky-fibrillose and shining when dry, stuffed; cortina white; spores ellipsoid, smooth, 6–8.5 × 4–5 μ.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: On the ground, in frondose woods.
DISTRIBUTION: Michigan and New York.
ILLUSTRATION: C. H. Kauffman, Agar. Mich. *pl. 90.*

180. **Cortinarius armeniacus** Fries, Epicr. Myc. 304. 1838.

Agaricus armeniacus Fries, Syst. Myc. 1: 234. 1821.

Pileus fleshy, rather firm, campanulate-subexpanded, broadly umbonate, obtuse, 5–7 cm. broad; surface glabrous, even, hygrophanous, Sudan-brown (R) when moist, orange-buff (R) or tan throughout when dry; margin white-silky from the cortina when dry; context thin on the margin, scissile, soon pallid, the odor and taste mild or slightly that of radish; lamellae adnate, emarginate, broad, ventricose, close, thin, at first pallid, then Mars-yellow (R) to cinnamon, the edge entire; stipe tapering upward, 5–7 cm. long, 5–8 mm. thick above, twice as thick below, watery-pallid when moist, dingy-whitish when dry, silky-fibrillose, the rind cartilaginous, stuffed, spongy at base, cortina whitish, sparse; spores ellipsoid, slightly rough, 8–9 × 5–5.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in coniferous mountain forests.
DISTRIBUTION: New York and Washington; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 793* (*826*); Ricken, Blätterp. Deutschl. *pl. 51, f. 4.*

181. **Cortinarius imbutus** Fries, Epicr. Myc. 306. 1838.

Pileus convex, then expanded, obtuse or subumbonate, 2.5–7 cm. broad; surface even, hygrophanous, chestnut-brown when moist, changing color, alutaceous or rufous-tinged on the disk when dry and then becoming somewhat hoary; margin at first incurved and sometimes decorated by whitish fibrillose scales from the cortina; context thickish on the disk, thin on the margin, watery to pallid, the odor none; lamellae adnate, then subemarginate, broad, close, not crowded, violaceous at first with lavender tinge, soon cinnamon, the edge concolorous; stipe rather stout, 3–5 cm. long, 5–10 mm. thick, equal or nearly so, solid, at first violaceous, especially at the apex, rarely subannulate from the whitish cortina; spores narrow, ellipsoid, smooth, 7–8.5 × 4–4.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in frondose or coniferous woods.
DISTRIBUTION: New York to Michigan; Colorado; also in Europe.
ILLUSTRATION: Cooke, Brit. Fungi *pl. 870* (*834*).

182. **Cortinarius castaneus** Fries, Epicr. Myc. 307. 1838.

Agaricus castaneus Fries, Syst. Myc. 1: 235. 1821.

Pileus firm, campanulate-convex, expanded or gibbous, even, subumbonate, 2–5 cm. broad; surface scarcely hygrophanous, dark-chestnut-colored, shining when dry, hardly fading, the margin at first white-silky; context thin, rigid-tough, concolorous to pallid, the odor and taste slight; lamellae adnexed, not broad, ventricose, close, violet at first, then rusty-cinnamon, the edge whitish; stipe not truly slender, 2–4 cm. long, 4–6 mm. thick, cartilaginous, stuffed, then hollow, violaceous or pallid-rufescent, silky from the white cortina; spores ellipsoid, rough, 7–9 × 4–5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in open woods.
DISTRIBUTION: New York; also in Europe.
ILLUSTRATION: Cooke, Brit. Fungi *pl. 842* (*835*).

183. **Cortinarius laetior** P. Karst. Bidr. Finl. Nat. Folk **32**: 387. 1879.

Pileus subfleshy, at first oval to subhemispheric, then expanded-plane and obtusely subumbonate, 2–4 cm. broad; surface glabrous, hygrophanous, chestnut-brown (R) when moist, cinnamon-brown (R) when dry and then interspersed with innate silky white fibrils; margin at first incurved and striate, then decurved; context thin, the odor and taste mild; lamellae adnate, rather narrow to moderately broad, close, at first clay-colored (R), then ochraceous-tawny, the edge entire and concolorous; stipe equal or slightly incrassate downward, 5–9 cm. long, 5–6 mm. thick, stuffed and soft within, then hollowed by grubs, violaceous-tinged at the apex, elsewhere dingy-brownish when moist, fading to cinnamon-buff (R); surface silky-fibrillose;

cortina whitish; spores broadly ovoid, smooth, 7–8 × 5.5–6 μ, dark-brownish under the microscope.

TYPE LOCALITY: Finland.
HABITAT: In deep moss and sphagnum, in coniferous forests.
DISTRIBUTION: Adirondack Mountains, New York; also in Europe.

184. **Cortinarius pallidus** Peck, Ann. Rep. N. Y. State Mus. **42**: 118. 1889.

Pileus submembranous, convex or nearly plane, 2.5–4 cm. broad; surface glabrous, hygrophanous, pale-alutaceous when moist, buff-yellow when dry; context thin, concolorous when moist, whitish when dry; lamellae thin, rather close, ventricose, pallid; stipe equal, 4–7 cm. long, 2–4 mm. thick, rigid, hollow, silky-fibrillose, pallid, becoming brownish toward base; spores ellipsoid, 7.5–9 × 5–6 μ.

TYPE LOCALITY: North Elba, New York.
HABITAT: Mossy ground, in wooded swamps.
DISTRIBUTION: Adirondack Mountains, New York.

185. **Cortinarius erugatus** Fries, Epicr. Myc. 306. 1838.

Pileus campanulate-convex, obtuse to broadly subumbonate, 3–6 cm. broad; surface hygrophanous, pale-umber-cinnamon to grayish-brown with a rufous or fulvous umbo when moist, on drying becoming pale-reddish-gray with innate silky fibrils and silvery sheen, glabrous, even; margin at first incurved and entirely white-silky; context thin, splitting on the margin, this at length recurved, the odor and taste mild; lamellae adnate-emarginate, rather broad behind, tapering in front, close, thin, pallid-brownish at first, then alutaceous to ferruginous, the edge minutely erose-lacerate; stipe variable in length and thickness, at first clavate-bulbous, then elongate, 4–7 cm. long (when elongate 8–10 cm.), 5–12 mm. thick, soft-spongy, stuffed, pallid and streaked with silky white fibrils, becoming sordid, not cingulate; spores ellipsoid, rather narrow, smooth, variable in length, 6–8.5 (rarely 9) × 4–4.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On leaf-mold, in coniferous woods.
DISTRIBUTION: Michigan and Maryland; also in Europe.

186. **Cortinarius subrigens** C. H. Kauffman, Agar. Mich. **1**: 433. 1918.

Pileus fleshy, broadly convex from the first, then expanded-plane or subdepressed, 3–5 cm. broad; surface bay-brown to chestnut and variegated with white hoariness when moist, fading quickly to cinnamon-rufous and then hoary isabelline when dry, hygrophanous, even; margin at first incurved and cortinate; context rigid-brittle, thin, dingy-pallid or brownish, the odor and taste mild; lamellae sinuate-adnate, close, moderately broad, pallid to brownish, then cinnamon, the edge entire and concolorous; stipe equal or tapering downward, 3–5 cm. long, 5–10 mm. thick, rigid, the base often curved, stuffed, then hollow, at first cortinate-fibrillose, glabrescent and silky-shining, pallid to white, rarely subannulate from the white cortina; spores narrow-ellipsoid, subinequilateral, slightly rough, 9–10 × 4.5–5.5 μ.

TYPE LOCALITY: Ann Arbor, Michigan.
HABITAT: On leaf-mold, in frondose woods.
DISTRIBUTION: Michigan.

187. **Cortinarius praepallens** Peck, Bull. N. Y. State Mus. **1**^{2}: 9. 1888.

Pileus fleshy, subconic, then convex or expanded, 1–4 cm. broad; surface hygrophanous, brown or chestnut-colored when moist, pallid-ochraceous when dry; context yellowish-white, thin; lamellae rounded behind or subemarginate, crowded, lanceolate, reddish-umber, then fuscous-cinnamon; stipe equal, 2–7 cm. long, 4–8 mm. thick, subflexuous, fleshy, fibrous, subsilky, pallid or brownish; spores subellipsoid, 7–10 × 6.5 μ.

TYPE LOCALITY: Sandlake, New York.
HABITAT: On the ground, in woods.
DISTRIBUTION: New York to Maryland.

188. **Cortinarius juberinus** Fries, Epicr. Myc. 309. 1838.

Pileus campanulate-convex, then expanded, umbonate or the umbo obsolete, 2–4 cm. broad; surface chestnut-brown to watery-cinnamon when moist, ochraceous when dry, subhygrophanous, glabrous, even, silky-shining when dry; margin at first incurved and white-silky from the cortina; context concolorous, thin, the odor and taste slight or none; lamellae adnate, then subemarginate, subdistant, rather broad, thin, at length ventricose, pallid-brown, then cinnamon, the interspaces somewhat venose, the edge concolorous; stipe moderately slender, equal or subequal, 3–7 cm. long, 3–5 mm. thick, even, stuffed, then hollow, pallid at first, then brownish or fuscescent, innately silky-fibrillose; cortina white, fugacious; spores broadly ellipsoid-ovoid, scarcely rough, 6.5–7.5 × 4.5–5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in mixed or coniferous woods.
DISTRIBUTION: Northeastern North America; also in Europe.
ILLUSTRATION: Cooke, Brit. Fungi *pl. 797* (*842*).

189. **Cortinarius angulosus** Fries, Epicr. Myc. 308. 1838.

Pileus fleshy, firm, convex-campanulate, obtuse or with a broad obtuse umbo, 3–6(–7) cm. broad; surface glabrous, even, hygrophanous, Dresden-brown (R) to cinnamon-brown (R) when moist, becoming yellow-ocher (R) to ochraceous-orange (R) on losing moisture, opaque; margin at first incurved, soon naked; context concolorous, thin on the margin, the odor and taste none; lamellae adnate, thickish, close to subdistant, distinct, subventricose, rather broad, pale-cinnamon, then tawny (R) or ochraceous-tawny (R), the edge entire and concolorous; stipe equal or slightly tapering upward, 4–6(–7) cm. long, 3–7(–8) mm. thick, firm and rigid when growing, stuffed, straight, at length subflexuous, sometimes twisted, yellowish or lutescent, innately fibrillose or naked; cortina scanty, fugacious; spores ellipsoid, roughish, 7–9 × 5–6 μ, ochraceous-brownish under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under conifers, in moist forests.
DISTRIBUTION: Rocky Mountains, Colorado; Adirondack Mountains, New York; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 162, f. 2;* Ricken, Blätterp. Deutschl. *pl. 50, f. 5.*

190. **Cortinarius isabellinus** Fries, Epicr. Myc. 308. 1838.

Pileus rather fleshy, becoming brittle, subcampanulate at first, then convex-subexpanded, obtuse or subumbonate, sometimes gibbous, 3–5 cm. broad; surface glabrous, even, with a cartilaginous thin cuticle, hygrophanous, Saccardo-umber (R) when moist, olive-ocher (R) when dry, the variegated effect of these shades of color while losing moisture being characteristic; context rather thick on the disk, abruptly thin on the margin, concolorous; cortina olive-ocher, evanescent; lamellae adnate to emarginate-uncinate, close to subdistant, sometimes thick and wrinkled on the sides, rather broad, at first pale olive-ocher (R), finally cinnamon (R), the edge subserrulate; stipe equal, 4–8 cm. long, 4–8 mm. thick, sometimes short-attenuate at the base, curved or flexuous, very rigid and brittle, solid but soon hollowed by grubs, striate at the apex, pale-olive-ocher (R) within and without, glabrous and shining; spores narrowly ellipsoid, pointed at one end, almost smooth, 8–9(–10) × 4.5–5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On hard soil, in mountains, under pine.
DISTRIBUTION: Colorado; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 829* (*839*); Grevillea *pl. 114, f. 1.*

191. **Cortinarius renidens** Fries, Epicr. Myc. 308. 1838.

Pileus slightly fleshy, firm, campanulate-convex, then expanded, obtuse or obtusely umbonate, 2.5–5(–6) cm. broad; surface glabrous, somewhat shining, roods-brown (R) to amber-brown (R) when moist, hygrophanous and fading, orange-cinnamon (R) to orange-buff (R) when dry, the disk fading quickly; margin at first incurved, with or without silky remnants of the yellowish, evanescent cortina; context hygrophanous, concolorous, at length pallid, scissile, the odor and taste mild; lamellae adnate, seceding, close, 5–7 mm. broad, at first pallid, at

length cinnamon-tawny (R); stipe equal or slightly enlarged below, 4–8 cm. long, 5–8 mm. thick, solid, soon hollowed by grubs, innately silky-fibrillose and shining, at first ochraceous-buff (R) or yellowish-tinged, at length pallid; spores oval, minutely rough, 6–7 × 4–5 μ, pale-ochraceous under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under spruce, fir, and hemlock, in the higher mountains.
DISTRIBUTION: Adirondack Mountains, New York; Cascade and Olympic Mountains, Washington and Oregon; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 162, f. 1;* Cooke, Brit. Fungi *pl. 782* (*840*).

192. **Cortinarius fuscoviolaceus** Peck, Ann. Rep. N. Y. State Mus. **27**: 96. 1875.

Pileus convex, umbonate, soon expanded and centrally depressed, 1–2 cm. broad; surface glabrous, hygrophanous, chestnut-brown tinged with violet, the margin whitened by silky fibrils; lamellae rounded behind, at first plane, then ventricose, rather distant, dark-violaceous at first, becoming subcinnamon; stipe slender, flexuous, equal, 2.5–4 cm. long, solid, silky-fibrillose, colored like the pileus, spores minute, broadly ellipsoid, smooth, 6–7 × 3–4 μ.

TYPE LOCALITY: Forestburgh, New York.
HABITAT: On *Sphagnum*, in bogs.
DISTRIBUTION: New York and Michigan.

193. **Cortinarius obtusus** Fries, Epicr. Myc. 313. 1838.

Agaricus obtusus Fries, Syst. Myc. 1: 233. 1821.

Pileus submembranaceous, fragile, conic-campanulate, at length expanded and umbonate, or the umbo vanishing, 2–4 cm. broad; surface glabrous, Sudan-brown (R) to amber-brown (R) and striatulate nearly to the center when moist, light-ochraceous-buff (R) and even when dry, hygrophanous, losing moisture rapidly; context concolorous, thin, the odor and taste slight; lamellae adnate, seceding, subdistant, broad, ventricose, thickish, the shorter ones narrower, sometimes intervenose, at first clay-colored (R) to ochraceous-tawny (R), finally cinnamon, the edge entire; stipe equal or attenuate at the base, 4–6 cm. long, 3–6 mm. thick, cespitose or gregarious, fragile when fresh, subrigid-brittle when dry, the surface with scattered, appressed, silky fibrils, then glabrescent and shining, flexuous, soon hollow, alutaceous-lutescent or pallid-yellowish-brown when moist, whitish when dry, concolorous within; spores broadly ellipsoid, roughish, 8–10 × 5–6 μ, pale-ochraceous under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: Under coniferous trees, in mountain forests.
DISTRIBUTION: Adirondack Mountains, New York, and Rocky Mountains, Colorado; also in Europe.
ILLUSTRATIONS: Fries, Ic. Hymen. *pl. 163, f. 3;* Cooke, Brit. Fungi *pl. 845a* (*852*); Gill. Champ. Fr. *pl. 341* (*236*); Grevillea *pl. 129, f. 1.*

194. **Cortinarius uraceus** Fries, Epicr. Myc. 309. 1838.

Pileus fleshy, firm, at first ovate or campanulate, then convex-subexpanded, often with a mammillate umbo, 2–5 cm. broad; surface hygrophanous, smoky-chestnut-brown (R) when moist, even, fading to cinnamon-brown or isabelline, with blackish streaks, often blackish on the umbo; margin persistently decurved; context thin except the disk, scissile, watery-chestnut when moist, fragile when dry, the odor of radish on crushing plants, the taste slight; lamellae broadly adnate, broad, close to subdistant, dark-watery-brown at first, then auburn to dark-rusty-brown (R), the edge at length black; stipe equal or tapering slightly upward, 4–9 cm. long, 4–10 mm. thick, becoming flexuous, firm, stuffed, then hollow, pallid when fresh, soon brownish-streaked, fuscescent, in age blackish, rarely with a narrow white evanescent annulus; cortina whitish, forming a silky zone on the young margin of the pileus, fuscescent; spores broadly ellipsoid, rough, 7–8 × 5–6 μ.

TYPE LOCALITY: Sweden.
HABITAT: On mosses and humus, in coniferous forests.
DISTRIBUTION: Adirondack Mountains, New York, and Rocky Mountains, Colorado; also in Europe.
ILLUSTRATION: Fries, Ic. Hymen. *pl. 162, f. 3.*

195. **Cortinarius rigens** Fries, Epicr. Myc. 311. 1838.

Pileus fleshy, rather rigid when dry, campanulate-expanded, subumbonate, obtuse or broadly gibbous, 2–5 cm. broad; surface glabrous, even, hygrophanous, cinnamon-rufous (R) to Capuchin-brown (R) when moist, fading to ochraceous-buff (R) and then with delicate canescent innate fibrils; margin at first straight; context thin, concolorous, fading to white, the odor somewhat penetrating, subaromatic; cortina scanty, white; lamellae adnate, subdecurrent, broad, close, becoming subdistant, pale-clay-colored, then pale-cinnamon, the edge crenulate-eroded; stipe tapering downward and subradicating, sometimes equal, sometimes fusiform, 5–8 cm. long, 5–9 mm. thick, toughish, more rigid-brittle when dry, the cortex cartilaginous, stuffed, then hollow, pruinose at the apex, at length silky-shining and whitish; spores ellipsoid, almost smooth, 7–9 × 4–5 μ.

TYPE LOCALITY: Sweden.
HABITAT: In coniferous or mixed forests.
DISTRIBUTION: Appalachian Mountains, New York to Tennessee; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 812 (846)*; Grevillea *pl. 104, f. 1*; Ricken, Blätterp. Deutschl. *pl. 53, f. 9*.

196. **Cortinarius scandens** Fries, Epicr. Myc. 312. 1838.

Pileus fleshy, rigid, conic-campanulate, then expanded-umbonate, 1–3 cm. broad; surface glabrous, watery-rusty-fulvous at first when moist and then striatulate on the margin, soon honey-colored or alutaceous to paler when dry, soon even, hygrophanous; context thin, concolorous, the odor none or slight; lamellae adnate, sometimes emarginate, narrow, close to subdistant, thin, pallid-brown, then cinnamon, the edge concolorous; stipe 3–8 cm. long, 2–5 mm. thick, tapering downward, thickened above, attenuate at the slender curved base, flexuous, soon rigid, stuffed, then hollow, fulvous when moist, pallid or white and shining when dry, scarcely fibrillose at first by the remains of the scanty white cortina; spores short-ellipsoid, almost smooth, 6–7.5 (rarely 8) × 4–5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in frondose and coniferous forests.
DISTRIBUTION: New York to Michigan; Colorado; also in Europe.

197. **Cortinarius acutus** Fries, Epicr. Myc. 314. 1838.

Pileus fleshy, conic or conic-campanulate with an acute umbo, 5–25 mm. broad; surface watery-rufous-cinnamon when moist, pale-alutaceous when dry, hygrophanous, minutely silky, striate to the umbo; margin white-cortinate, glabrescent; context submembranaceous, yellowish; lamellae adnate, seceding, close or scarcely subdistant, thin, not broad, pale-ochraceous at first, then ochraceous-cinnamon, the edge entire; stipe equal, 4–8 cm. long, 1–2 mm. thick, slender, flexuous, tubular, yellowish at first, becoming paler, silky from the evanescent white cortina, glabrescent; spores ellipsoid, smooth, 7–9.5 × 5–5.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in swampy places and mixed woods.
DISTRIBUTION: New England and New York; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 845b (852)*; Grevillea *pl. 112, f. 5*.

198. **Cortinarius lignarius** Peck, Ann. Rep. N. Y. State Mus. 26: 62. 1874.

Pileus conic-campanulate, subacutely umbonate, 0.5–3 cm. broad; surface hygrophanous, glabrous, watery-cinnamon to chestnut-fulvous when moist, not striate, fading to pale-fulvous-tan, innately silky-shining; margin at first straight and soon naked; context submembranaceous, concolorous, the odor none, the taste slight; lamellae adnate-seceding, broad, close, thin, ochraceous-pallid at first, then somewhat rusty-brown; stipe rather slender, equal, 2–5 cm. long, 2–3 mm. thick, pallid or subrufous toward the base, often curved at the base, silky-fibrillose below, subcingulate at or above the middle by silky-white remnants of the rather copious cortina, at length tubular, the base white-mycelioid; spores narrow-ellipsoid, smooth, 6.5–7 × 4–5 μ.

TYPE LOCALITY: Catskill Mountains, New York.
HABITAT: On very rotten wood, in coniferous or mixed forests.
DISTRIBUTION: New York to Michigan.
ILLUSTRATION: C. H. Kauffman, Agar. Mich. *pl. 91*.

199. **Cortinarius erythrinus** Fries, Epicr. Myc. 312. 1838.

Pileus rather firm, conic-campanulate, then subexpanded, and subacutely umbonate, 1–2 cm. broad; surface chestnut-brown, the umbo umber or blackish, paler toward the margin, hygrophanous, glabrous, even, soon fading; context thin on the margin, scissile, watery-brown when moist, the odor and taste mild; lamellae rounded behind and adnexed, rather broad, ventricose, close to subdistant, pallid or pale-brownish, then cinnamon, the edge entire; stipe slender, 4–6 cm. long, 3–4 mm. thick, fragile, equal, flexuous, stuffed, then hollow, the apex violet at first, pale-brownish elsewhere, sometimes violet-tinged throughout, sparsely cortinate, glabrescent, shining when dry; spores short, ellipsoid, almost smooth, 7–9 × 5–6 μ, pale-ochraceous.

TYPE LOCALITY: Sweden.
HABITAT: On the ground, in moist coniferous or mixed woods.
DISTRIBUTION: Adirondack Mountains, New York; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 798a* (*850*); Ricken, Blätterp. Deutschl. *pl. 53, f. 2*; Grevillea *pl. 115, f. 2*.

200. **Cortinarius leucopus** Fries, Epicr. Myc. 311. 1838.

Agaricus leucopus Fries, Syst. Myc. 1: 236. 1821.

Pileus conic-campanulate, at length expanded and umbonate, 1–3 cm. broad; surface even, glabrous, roods-brown (R) when moist, cinnamon-buff (R) when dry, hygrophanous; lamellae adnate-sinuate, ventricose, not broad, subdistant, pallid at first, then ochraceous-tawny (R), the edge entire; stipe rather slender, equal, 3–4 cm. long, 2–4 mm. thick, silky-fibrillose or sometimes subcingulate from the white cortina, stuffed to hollow, white or pallid; spores narrow, ellipsoid-oblong, scarcely rough, 7–8 × 3.5–4.5 μ.

TYPE LOCALITY: Sweden.
HABITAT: On mossy ground, in coniferous forest.
DISTRIBUTION: New York to Michigan; also in Europe.
ILLUSTRATION: Cooke, Brit. Fungi *pl. 843b* (*848*).

201. **Cortinarius acutoides** Peck, Bull. N. Y. State Mus. 139: 46. 1910.

Pileus fleshy, conic or subcampanulate, acutely umbonate, 8–16 mm. broad; surface hygrophanous, not striate, pale-chestnut-colored at first, floccose and margined by the fibrils of the cortina, whitish and silky-fibrillose when dry; lamellae adnexed, subdistant, ascending, narrow, yellowish-cinnamon; stipe 2.5–5 cm. long, 2–3 mm. thick, solid or with a small hollow tubule, white, then pallid; spores ellipsoid, 8–10 × 6–7 μ.

TYPE LOCALITY: Ellis, Massachusetts.
HABITAT: On the ground, in swamps.
DISTRIBUTION: New England and New York.
ILLUSTRATION: Bull. N. Y. State Mus. 139: *pl. Z, f. 4–8*.

202. **Cortinarius germanus** Fries, Epicr. Myc. 312. 1838.

Pileus submembranous, fragile, campanulate, then expanded and obtusely umbonate, 1–3 cm. broad; surface glabrous, even, hygrophanous, army-brown (R) to vinaceous-brown (R) and innately silky-shining when moist, fading; margin white-silky, scarcely incurved; context concolorous, then pallid, thin, the odor and taste slight; lamellae broadly adnate, sometimes subdecurrent by a tooth or line, subdistant, broad, rigid, pallid at first, becoming sayal-brown (R) or darker, the edge entire; stipe equal, 3–5 cm. long, 1.5–3 mm. thick, straight, then flexuous, curved, subcespitose or gregarious, very thinly white-silky, glabrescent and shining, pale-vinaceous-brown (R), white-mycelioid at the base, stuffed, then hollow; spores ellipsoid, punctate, 8–9 × 5 μ, dark-rusty-brown under the microscope.

TYPE LOCALITY: Sweden.
HABITAT: In moist mixed woods of pine and beech.
DISTRIBUTION: New England to Maryland; also in Europe.
ILLUSTRATIONS: Cooke, Brit. Fungi *pl. 859* (*844*); Grevillea *pl. 114, f. 2*.

DOUBTFUL AND EXCLUDED SPECIES

Cortinarius appendiculatus Johnson, Bull. Minn. Acad. **1**: 335. 1878. Incompletely described. Type not extant.

Cortinarius arenatus Fries, Epicr. Myc. 283. 1838. A collection by Peck at Albany appears to be a poorly developed *C. pholideus*.

Cortinarius autumnalis Peck, Ann. Rep. N. Y. State Cab. **23**: 109. 1872. Insufficiently described.

Cortinarius Berlesianus Sacc. & Cub.; Sacc. Syll. Fung. **5**: 919. 1887. Based upon *C. tricolor* Peck; it may be *C. delibutus* Fries, but no certainty can be expressed.

Cortinarius bryorum Clements, Crypt. Form. Colo. *382*. 1907. A minute plant, probably a *Pholiota*.

Cortinarius caesius Clements, Bot. Surv. Neb. **4**: 22. 1896. Insufficiently known.

Cortinarius cinereo-violaceus Fries, Epicr. Myc. 279. 1838. A collection by Peck, and so referred by him, remains uncertain because of lack of descriptive notes. See also writings of Fries, where the name sometimes occurs as *Cortinarius violaceo-cinereus*.

Cortinarius Clintonianus Peck, Ann. Rep. N. Y. State Mus. **26**: 61. 1874. This is probably identical with *C. anomalus* Fries.

Cortinarius craticius Fries, Epicr. Myc. 282. 1838. A collection in the Peck herbarium at Albany is referable to *Cortinarius rubripes* C. H. Kauffman.

Cortinarius fascicularis Johnson, Bull. Minn. Acad. **1**: 333. 1878. Incompletely described. Type not extant.

Cortinarius maculatus Johnson, Bull. Minn. Acad. **1**: 334. 1878. Incompletely described. Type not extant.

Cortinarius nitidus Fries, Epicr. Myc. 275. 1838. A collection so named is in the Peck herbarium at Albany, but the determination is doubtful.

Cortinarius nudipes Earle, Bull. N. Y. Bot. Gard. **2**: 343. 1902. From California. Insufficiently described.

Cortinarius ochroleucus Fries, Epicr. Myc. 284. 1838. Frequently reported from North America; at least sometimes confused with *Cortinarius flavifolius* Peck. I have never seen the species in this country.

Cortinarius pluvius Fries, Epicr. Myc. 277. 1838. Specimens identified by Peck are at Albany, but without detailed notes. In such a case no certainty can be arrived at as to their identity.

Cortinarius pulcher Peck, Ann. Rep. N. Y. State Mus. **26**: 63. 1874. This is probably referable to *Naucoria*.

Cortinarius punctifolius Peck, Bull. Torrey Club **30**: 96. 1903. From Idaho. This species is better a *Flammula*.

Cortinarius radians Earle, Bull. N. Y. Bot. Gard. **2**: 343. 1902. From California. Insufficiently described.

Cortinarius radicibus Johnson, Bull. Minn. Acad. **1**: 334. 1878. Incompletely described. Type not extant.

Cortinarius Robinsonii Mont. Syll. Crypt. 134. 1856. Not likely to be further recognized.

Cortinarius rubidus Mont. Syll. Crypt. 133. 1856. From Ohio. No satisfactory knowledge of this species is at hand, nor likely to appear.

Cortinarius robustus Peck, Ann. Rep. N. Y. State Mus. **29**: 42. 1878. Insufficiently described.

Cortinarius simulans Peck, Bull. N. Y. State Mus. **1²**: 8. 1888. This is probably identical with *Cortinarius anomalus* Fries.

Cortinarius Sintenisii P. Henn. Bot. Jahrb. **17**: 498. 1893. Described from Porto Rico. I have not seen it.

Cortinarius speciosus Earle, Bull. N. Y. Bot. Gard. **3**: 299. 1904. From California. Unknown to me.

Cortinarius subsalmoneus C. H. Kauffman, Jour. Myc. **13**: 38. 1907. Only a very brief synopsis of this is in print.

Cortinarius tigrinus Johnson, Bull. Minn. Acad. **1**: 335. 1878. Incompletely described. Type not extant.

Cortinarius tophaceus Fries, Epicr. Myc. 281. 1838. Peck placed a collection, now at Albany, under this species; it appears, however, to be *Cortinarius annulatus* Peck.

Cortinarius tricolor Peck, Ann. Rep. N. Y. State Cab. **23**: 107. 1872. This appears to be similar to *Cortinarius delibutus* Fries.

Cortinarius validipes Peck, Bull. N. Y. State Mus. 116: 20. 1907. Belongs to the genus *Flammula*, and is referred by Murrill to *Flammula magna* Peck as *Gymnophilus magna* (Peck) Murrill.

Cortinarius venosus Johnson, Bull. Minn. Acad. **1**: 336. 1878. Incompletely described. Type not extant.

Cortinarius vernalis Peck, Ann. Rep. N. Y. State Cab. **23**: 112. 1872. This species is referable to the genus *Naucoria*.

DIAGNOSES SPECIERUM NOVARUM GENERUM HYPODENDRUM ET CORTINARIUS

Hypodendrum aurivelloides (vide pag. 281).

Pileus hemisphaericus vel late campanulatus vel convexus, e ferrugineo fuscus margine pallidiore, squamis paucis appressis; contextus flavus nonnihil crassus; lamellae sinuato-adnatae vel dente decurrente, ex albido ochraceo-fulvus vel surrufus; velamen annulum persistentem vel nonnihil evanescentem formans; stipes centralis aequalis, subaureus vel subbrunneus, squamosus, solidus; sporae oblongo-ellipsoideae leves saturate brunneae, 9–11 × 6 μ.

Cortinarius montanus (vide pag. 299).

Pileus carnosus, e late convexo subhemisphaericus tum expansus discoideusque margine decurvato, viscidus humescens glutinosus, e corylino fuscus vel argillicolor margine umbricolor aequale glabro; contextus ad 15 mm. crassus, ad marginem abrupte tenuis, albidus, odore saporeque mite; lamellae emarginato-adnexae angustae confertae, e olivaceo brunneae, margine integro; stipes firmus, subtiliter albido-sericeo-fibrillosus, e farcto cavus, pallide caeruleus intus concolor, supra aequalis infra bulbosus; sporae ellipsoideae subinaequilaterales tuberculatae, sub vitro pallide ferrugineae, 9–12 × 5.5–7 μ.

Cortinarius substriatus (vide pag. 307).

Pileus subcarnosus, late conico-campanulatus, viscidus glaber, e brunneo pallescens nonnihil margine striato; lamellae adnatae ventricosae confertae marginem pilei non attingentes, e violaceo-purpureo cinnamomeae; stipes elongatus, a basi ad apicem sensim angustans, siccus, farctus, primo vaginatus tum subfibrillosus, apice violaceo-purpureus mox pallidior; sporae anguste ellipsoideae, leves, sub vitro pallide ochraceae, 9–10 × 5–6 μ.

Cortinarius immixtus (vide pag. 310).

Pileus carnosus, campanulato-convexus tum subplanus, obtusus, glutinosus glaber, citrinus, tardius centro brunneus et margine ochraceo-fuscus; contextus centro crassus margine abrupte tenue, albidus, odore saporeque mite; lamellae adnatae tum sinuatae, confertae, tenues, e sulphureo cinnamomeae, margine integro; stipes crassus, subaequalis, farctus mox ad apicem cavus, ad apicem glaber et nitens alibi fibrillosus; sporae ventricoso-subellipsoideae utrinque subacutae, nonnihil amygdaliformes, leves, sub vitro furfuraceae, 8–10 × 4.5–5.5 μ.

Cortinarius pyriodorus (vide pag. 314).

Pileus carnosus firmiusculus campanulato-convexus tum valde expansus, obtusus vel subumbonatus, siccus, glaber sed innate sericeo-fibrillosus, nitens, aequalis, unicolor, primo e lilacino lavendulicolor ad maturitatem saturate vinaceo-lavendulicolor, pallescens, margine primo incurvo et decurvo; contextus compactus centro crassus margine abrupte tenuis, concolor, sapore mite, odore penetrante sed variabile non fetido; lamellae adnatae demum subdecurrentes, discretae, e lilacino purpureae vel cinnamomeae; stipes longus, e basi clavato sursum sensim angustans, solidus, concolor, demum subfibrillosus, bulbo albido; sporae ellipsoideo-subfusiformes utrinque subacutae, sub vitro dilute cinnamomeae, 8–10 × 4.5–5.5 μ.

Cortinarius distortus (vide pag. 319).

Pileus carnosus fragilissimus irregulare subhemisphaericus vel campanulatus obtusus subexpandus, nonnihil udus et albo-sericeus mox siccus, glabrescens aequalis salmoneus margine ex incurvato decurvato; contextus rigidus crassus margine abrupte tenue aquoso-albidus, odore saporeque mite; lamellae varie adhaerentes ob pileum frequente distortum, subdistantes, subcrassae, pallide argillicolores tum saturatiores; stipes crassus fragilis, e subclavato clavato-bulbosus vel subaequalis, inflate gyrosus vel irregulariter longitudinale sulcatus, cavus contextu cartilagineo, extra intusque albus aetate brunnescens demum ubique fibrillosus; cortina alba; sporae ellipsoideae obtusae, 10–12 × 5.5–6.5 μ.

Cortinarius clandestinus (vide pag. 324).

Pileus modice crassus campanulato-convexus tum planus, primo umbonatus demum depressus, siccus, primo brunneo-fibrilloso-squamatus tardius ad marginem aureus disco demum saturatiore, margine tenue ex incurvo patente; contextus disco excepto tenuis, subfragilis, luteo-olivaceus, odore raphani; lamellae adnatae tum sinuatae confertae, pallidae mox lutescentes vel olivaceae demum brunneo-aureae margine minute albo-flocculoso; stipes aequalis vel infra crassior, farctus tum cavus, pallide viridi-aureus, obsolete peronatus vel glabrescens; sporae e late ellipsoideo subglobosae utrinque rotundatae levissimae, sub vitro saturate rubigineae, 6–7 × 5–6 μ.

COMPLETED VOLUME

9: i–iv, 1–542. (Agaricales:) Polyporaceae (pars), Boletaceae, Agaricaceae (pars). Complete in 7 parts.

PARTS OF VOLUMES PREVIOUSLY PUBLISHED

3^{1}: 1–88. Hypocreales: Nectriaceae, Hypocreaceae. Fimetariales: Chaetomiaceae, Fimetariaceae.

6^{1}: 1–84. Phyllostictales: Phyllostictaceae (pars).

7^{1}: 1–82. Ustilaginales: Ustilaginaceae, Tilletiaceae. **7^{2}**: 83–160. **7^{3}**: 161–268. **7^{4}**: 269–336. **7^{5}**: 337–404. **7^{6}**: 405–480. **7^{7}**: 481–540. **7^{8}**: 541–604. **7^{9}**: 605–668. **7^{10}**: 669–732. **7^{11}**: 733–796. **7^{12}**: 797–848. **7^{13}**: 849–969. Uredinales: Coleosporiaceae, Uredinaceae, Aecidiaceae.

10^{1}: 1–76. **10^{2}**: 77–144. **10^{3}**: 145–226. **10^{4}**: 227–276. (Agaricales:) Agaricaceae (pars).

14^{1}: 1–66. Sphaerocarpales: Sphaerocarpaceae, Riellaceae. Marchantiales: Ricciaceae, Corsiniaceae, Targioniaceae, Sauteriaceae, Rebouliaceae, Marchantiaceae.

15^{1}: 1–75. Sphagnales: Sphagnaceae. Andreaeales: Andreaeaceae. Bryales: Archidiaceae, Bruchiaceae, Ditrichaceae, Bryoxyphiaceae, Seligeriaceae. **15^{2}**: 77–166. Dicranaceae, Leucobryaceae.

16^{1}: 1–88. Ophioglossales: Ophioglossaceae. Marattiales: Marattiaceae. Filicales: Osmundaceae, Ceratopteridaceae, Schizaeaceae, Gleicheniaceae, Cyatheaceae (pars).

17^{1}: 1–98. Pandanales: Typhaceae, Sparganiaceae. Naiadales: Zannichelliaceae, Zosteraceae, Cymodoceaceae, Naiadaceae, Lilaeaceae. Alismales: Scheuchzeriaceae, Alismaceae, Butomaceae. Hydrocharitales: Elodeaceae, Hydrocharitaceae. Poales: Poaceae (pars). **17^{2}**: 99–196. **17^{3}**: 197–288. **17^{4}**: 289–354. Poaceae (pars).

18^{1}: 1–60. **18^{2}**: 61–112. **18^{3}**: 113–168. (Poales:) Cyperaceae (pars).

21^{1}: 1–93. Chenopodiales: Chenopodiaceae. **21^{2}**: 95–169. Amaranthaceae. **21^{3}**: 171–254. Allioniaceae.

22^{1}: 1–80. Rosales: Podostemonaceae, Crassulaceae, Penthoraceae, Parnassiaceae. **22^{2}**: 81–191. Saxifragaceae, Hydrangeaceae, Cunoniaceae, Iteaceae, Pterostemonaceae, Hamamelidaceae, Altingiaceae, Phyllonomaceae. **22^{3}**: 193–292. Grossulariaceae, Platanaceae, Crossosomataceae, Connaraceae, Calycanthaceae, Rosaceae (pars). **22^{4}**: 293–388. **22^{5}**: 389–480. **22^{6}**: 481–560. Rosaceae (pars).

23^{1}: 1–76. **23^{2}**: 77–136. **23^{3}**: 137–194. (Rosales:) Mimosaceae. **23^{4}**: 195–268. Krameriaceae, Caesalpiniaceae (pars). **23^{5}**: 269–349. Caesalpiniaceae (pars).

24^{1}: 1–64. **24^{2}**: 65–136. **24^{3}**: 137–200. **24^{4}**: 201–250. **24^{5}**: 251–314. **24^{6}**: 315–378. **24^{7}**: 379–462. (Rosales:) Fabaceae (pars).

25^{1}: 1–87. Geraniales: Geraniaceae, Oxalidaceae, Erythroxylaceae, Linaceae. **25^{2}**: 89–171. Tropaeolaceae, Balsaminaceae, Limnanthaceae, Koeberliniaceae, Zygophyllaceae, Malpighiaceae. **25^{3}**: 173–261. Rutaceae, Surianaceae, Simaroubaceae, Burseraceae. **25^{4}**: 263–326. Meliaceae, Trigoniaceae. Polygalales: Vochyaceae, Polygalaceae (pars). **25^{5}**: 327–383. Polygalaceae (pars), Dichapetalaceae.

29^{1}: 1–102. Ericales: Clethraceae, Monotropaceae, Lennoaceae, Pyrolaceae, Ericaceae.

32^{1}: 1–86. **32^{2}**: 87–158. Rubiales: Rubiaceae (pars).

33^{1}: 1–110. Carduales: Ambrosiaceae, Carduaceae (pars).

34^{1}: 1–80. **34^{2}**: 81–180. **34^{3}**: 181–288. **34^{4}**: 289–360. (Carduales:) Carduaceae (pars).

LANCASTER PRESS, INC.
LANCASTER, PA.